Better Crops

The Pocket Book of Agriculture.

September 1926 10 Cents

ıy not read—Averages—Which and Why?—A King of Spuds
Club Work for the Community—Bringing in Wood—Arkansas?

More profit from your rotation-

A SUITABLE crop rotation often makes a profit. But a rotation alone is not likely to give the greatest possible profit.

In fact a rotation may not even maintain production★. Other farm practices are likewise necessary if you wish to get maximum production at the lowest cost per acre. One of these is the use of the right kind of fertilizer.

There are sound tests which show that, in a rotation including winter grains and clover hay, a suitable fertilizer containing potash applied in the fall on wheat benefits the entire rotation chiefly through increased yields of clover. More clover hay means increased soil fertility and smaller feed bills.

Clover is a "potash-hungry" crop, but it is farm economy to apply this necessary potash to the wheat or other fall grain in which the clover and grasses are seeded.

On many soils—especially loams and sandy loams—from 4% to 6% of potash can be used with profit in Fall Fertilizer mixtures. The small increase in cost makes fertilizer with these percentages of potash worth a trial this Fall.

FREE—Our new booklet "Fall Fertilizer Facts" tells how to recognize symptoms of potash starvation by a study of clover leaves. It also contains other valuable information. Send for a copy today.

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Genuine German
POTASH

★ *Maintain Production*

Field tests made over a period of years by the Pennsylvania, Ohio, and Illinois Agricultural Experiment Stations have shown that rotation of crops, including clover, has not maintained production without the use of manures, fertilizers, and lime.

In Pennsylvania the addition of potash in the fertilizer increased the average annual yield covering a period of 40 years as follows:

Corn	8.5 bushels
Oats	5.2 "
Wheat	3.2 "
Hay	0.54 tons

In Illinois, at the Cutler Field, the addition of potash in the fertilizer also increased the yields over a period of 15 years. The average annual increases were:

Corn	20.3 bushels
Oats	4.5 "
Wheat	6.1 "
Clover	0.52 tons

Potash gives best results when used in connection with a sound soil fertility plan. It is our purpose to discuss it from this viewpoint in accord with the fertility programs of the various agricultural extension forces.

Better Crops

The Pocket Book of Agriculture

The Whole Truth—Not Selected Truth

VOLUME VII NUMBER ONE

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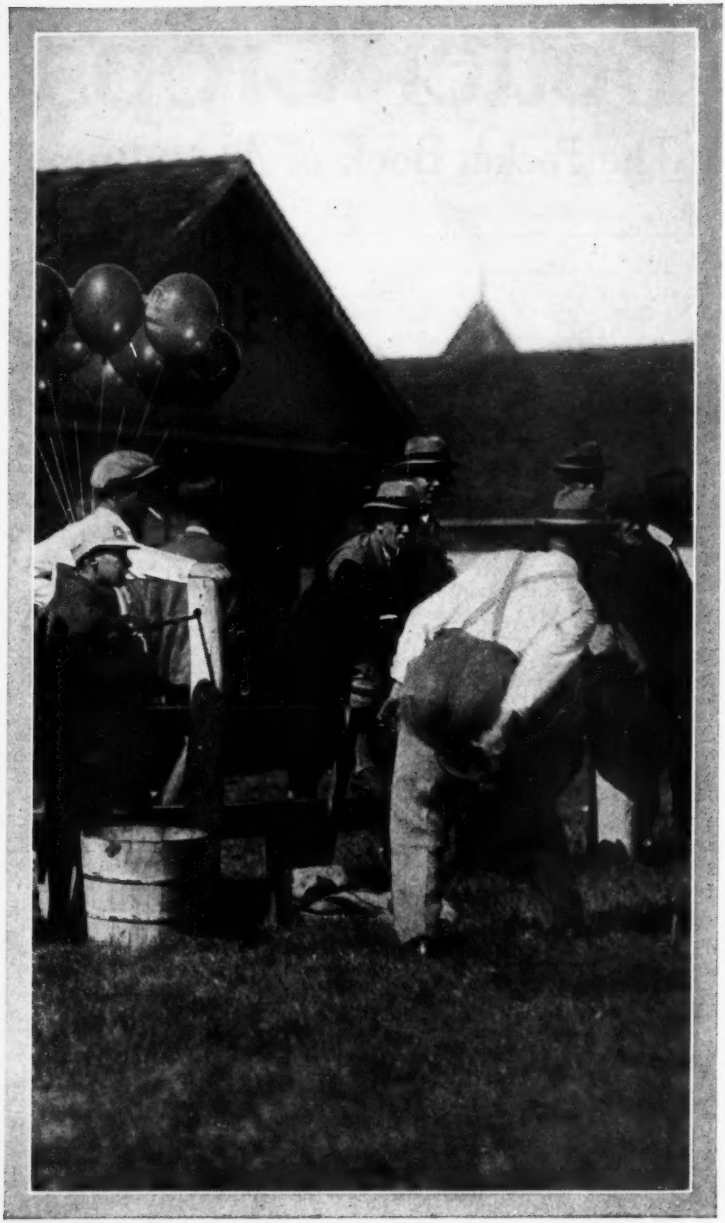

Tense moments in deciding a championship

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VOL. VII NEW YORK, SEPTEMBER, 1926 No. 1

¶ *A better than "average" story on—*

AVERAGES

By

Jeff McDermid

THE search for the "average man" with his average family of two and a half children and his average income of $3,421.05 has always baffled me.

I KNOW a man who has four children, another who has two, and several who have none. I shall bestow heartfelt sympathy upon that poor soul—the average man—when I meet him and view his two and a half children. The two whole youngsters are, I presume, normal, but I have a profound curiosity which I hope some day to satisfy in regard to how that unfortunate half-child may be formed.

And I have always been curious to know where the average man works to receive such a peculiar salary $3,421.05. Most salaries I have heard about are computed in round numbers, or at least are round when accepted even if partially flattened when received!

THE acceptance of statistics, *per se*, has been at once a mixed blessing and a curse to the world. For those unwilling or congenitally unable to think, statistics and averages furnish a mental featherbed into which they may slothfully and securely sink with a

sigh of luxurious abandon.

To many, statistics rear an impenetrable, baffling wall of darkness hiding the true understanding of the very situation they presume to illumine—a sort of will-o'-the-wisp searchlight which leads on and on and goes suddenly out just as they grasp for the essential point.

In some cases statistics furnish forth a fearful example of the danger which comes from little knowledge. There was the woman, you remember, who had nine children and declined to have another because she had read somewhere that every tenth child born into the world was a Chinaman!

AS an average man you will be interested in prying with me, another average man, into this matter of averages; although there is a danger for both of us, for it is always dangerous and disappointing to define anything too sharply, as the man who had always prided himself on being a model husband discovered when his wife, in a fit of exasperation, pointed out to him the dictionary meaning of model—"a small imitation of the real thing."

All my life I have heard the word "average" used, and myself have used it in its generally accepted meaning. I have gloated over tables of tiny figures showing average rainfalls, average yields of wheat in Bulgaria, and average this and that.

But just recently a real understanding of the word and its background sprang full-fledged into my consciousness, as Minerva sprang full-fledged from the brow of Jove.

The Standard Dictionary says, "Average, *n.*, The quotient of any sum divided by the number of its terms." So! Let us test the value of its definition. Men are prone to reduce the results of their activities to statistics and the foundation stones upon which statistics are reared are averages. To clearly understand statistics, then, we must come to a definite appreciation of the manner in which men arrive at averages.

Here, Gentle Reader, we have a circus tent containing two freaks. (The rest, undoubtedly, have gone to dinner!) I have just come out of the tent and you, naturally hungry for facts and eager to pounce upon whatever statistics I can throw your way, ask, "What is the average height of the freaks in there?"

Rapid calculation on my part: The dwarf was two feet high, the giant eight; two and eight are ten; divided by "the number of its terms," as the Dictionary instructs, makes five. I answer your question, "The average height of the freaks in there, my good sir, is five feet." I am correct in the dictionary sense of the meaning.

But I have misled you. If you went in to reassure yourself of my veracity and expected to find a freak five feet high you would certainly look in vain, and you would undoubtedly feel that if I were not a plain liar, at least I was extremely careless in the handling of the trutn.

AND so it goes with all averages and statistics. The climate booster who naively tells you that the average temperature in his town last week was seventy degrees and who neglects to qualify his statement by adding that the populace sweltered in an unprecedented temperature of a hundred and five the first three days of the week,

(*Turn to page 62*)

A cotton Club boy studying his acre with County Agent W. G. Yeager of Rowan county, N. C.

Which *and* Why?

By F. H. *Jeter*

Editor, North Carolina State College of Agriculture

¶ *Being the results of field tests with fertilizers*

IN his report to Director R. Y. Winters of the North Carolina Experiment Station, Prof. C. B. Williams, head of the Department of Agronomy at State College, gives some interesting facts about fertility studies on the branch station farms and outlying fields during the year 1925. The past year was not a particularly successful one in crop production because of the continued and extended drouth which prevailed over the State. However, the facts found are of interest.

The fertility work was conducted on all of the six branch stations and on 19 outlying fields in 13 counties. Most of the main soil types and leading crops were used.

At the Tobacco Branch Station near Oxford, it was found that muriate of potash continues to be the most efficient form of potash for tobacco insofar as acre yields are concerned. This does not take into consideration the burning quality of the tobacco, and the recent report of the committee of agronomists as to the use of potash should be kept in mind in this connection.

With Irish potatoes at the Mountain Branch Station, it was found that sulphate of potash gave

larger yields than either muriate or kainit.

At the Coastal Plain Station near Willard, potash showed good profits though phosphoric acid and nitrogen appeared more essential to the production of oats and vetch on the soil of this farm.

In a crop rotation experiment at the Upper Coastal Plain Station near Rocky Mount, where legumes were grown and taken off the land, other crops like corn, cotton, and peanuts following the legumes in rotation showed a decidedly greater potash hunger than when the crops followed legumes plowed under.

Over in the Piedmont section at the Piedmont Branch Station, potash was found to be essential in small quantities with all crops tried. The chief deficiencies, however, of the Cecil soils on this station farm were phosphoric acid and nitrogen.

TESTS made on a number of outlying fields gave some facts of interest.

With sweet potatoes in Carteret county, for instance, nitrogen and phosphoric acid alone gave no increase, while potash gave a good increase over the no-fertilizer plots. In the mixtures, nitrogen and potash gave the highest yields, while those containing only the phosphoric acid and nitrogen gave the lowest yields. From the results as a whole, it was determined that potash is most effective and nitrogen second. The best fertilizer mixture for potatoes on this soil was found to be 5 to 6 per cent available phosphoric acid, 3 to 4 per cent nitrogen and 6 to 10 per cent potash used at the rate of from 750 to 1,000 pounds per acre.

On a Cecil sandy loam soil in Cleveland county, best yields of cotton were secured by using a mixture of 9 per cent phosphoric acid and 6 per cent nitrogen. No rust developed on any of the plots and there were no symptoms of potash hunger. Other experiments with cotton on an Appling sandy loam in the same county, however, showed that the best mixtures were one containing 9 per cent available phosphoric acid and 6 per cent nitrogen, and another containing 6 per cent phosphoric acid, 6 per cent nitrogen and 3 per cent potash. The first mixture gave the largest percentage of cotton opening early, but considerable rust appeared in those plots receiving no potash. The plants shed their leaves badly and were completely defoliated about the time of the first picking.

Two formulas also were best for cotton on the Wickham sandy loam in Cumberland county. One of these contained 6 per cent available phosphoric acid, 3 per cent nitrogen and 6 per cent potash, while the other contained 6 per cent available phosphoric acid, 6 per cent nitrogen and 3 per cent potash. Applications between 300 and 900 pounds per acre paid best. Here muriate of potash was shown to be a better carrier of potash than either the sulphate or kainit.

PROFESSOR WILLIAMS has summarized results on a number of other fields. These summaries show that potash up to three per cent in the mixture was best for cotton on the Georgeville silt loam of Anson county. An application of 600 pounds of a mixture containing 6 per cent phosphoric acid, 5 per cent nitrogen and 3 per cent potash was most valuable on the Marlboro fine sandy loam of Sampson county. Increasing the potash beyond three per cent was found unwise.

(*Turn to page* 47)

A King of Spuds

By R. E. Wakeley

County Agent, Wayne County, Pennsylvania

Dick Simons subscribing to hospital built by potato growers

"THAT'S the talkingest bunch of farmers I ever met in my life," said pathologist Bert Miles to the county agent.

They had just come out of the schoolhouse where the farmers of Sterling township had decided to buy a fine, four-row, power potato sprayer. It was their first one and no one there had ever really sprayed potatoes before.

Some of Dick Simon's neighbors at the meeting had insisted that the sprayer wasn't any good and that it cost too much money. One man said they couldn't raise potatoes in Sterling anyway, 'cause he had tried it.

Above all rose Dick's voice, calm but insistent, "You fellows can do as you like but if them machines'll do what those State College folks say, I'm going to have one before I grow another crop of potatoes. I always could grow 'em but I'm gettin' tired of loosin' every other crop from late blight."

So Dick and three of his neighbors bought the potato sprayer, a fine combination potato and orchard outfit, and Dick is now the potato king of Wayne county.

THAT first summer the county agent had to keep after some of the men to get them to mix their bordeaux properly. Some of them were slipshod in their spraying, but Dick Simons sprayed nine times that season.

At digging time the neighbors were invited in to see the results. Four rows had been left unsprayed in the center of the piece. These were dug first and looked nice. It was not a bad blight year. Then they began digging the four sprayed rows, two on either side of the sprayed ones. The scales

told a story of 299 bushels per acre for the sprayed and 251 bushels per acre for the unsprayed.

Dick was jubilant after the meeting. He told the county agent, "I am satisfied now that I can keep them from rotting and next year I am going to grow some potatoes."

Beginning right then, he hauled out liberal quantities of stable and poultry manure on the land which was to grow potatoes. The heavy sod was broken in the fall and worked thoroughly. In the spring it was cross plowed as deep as the horses could pull the plow and again carefully harrowed. Then the fertilizer was applied, a ton of it to the acre.

Dick broadcasted 1,000 pounds of 4-8-4 to the acre and harrowed it in. Then he cut his new disease-free seed secured through the Farm Bureau. This seed was planted five inches deep and 500 pounds of 4-8-4 fertilizer applied in the row. Then as the potatoes came through the ground, 500 pounds more fertilizer to the acre was applied on top of the row and the potatoes again covered lightly.

That crop made Dick 394 bushels to the acre. His neighbors complained bitterly about the blight that year and many of their potatoes were hollow. Because of his careful methods, Dick's were all right. He says that potatoes will grow in Wayne county if fellows feed them well and treat them right.

LAST year he grew 420 bushels per acre and the year before that, he got 409 bushels. Each of these crops overcame a patch of quackgrass before they could thrive, but there was nothing in the field but potatoes at digging time.

These yields make him the only Wayne county member of the Pennsylvania 400-potato c l u b. There were only 39 potato growers in the state last year who grew 400 bushels or more on a measured acre.

Dick always leaves four unsprayed rows and last year they yielded 100 bushels per acre less than the sprayed ones.

Now Dick uses a potato planter and has a tractor and a digger to help with the heavy work. Formerly all this was done by hand

(*Turn to page* 55)

School children inspecting Dick's first spraying demonstration. Sprayed 299 bu. Unsprayed 251 bu.

A cloth soaked in geraniol makes a good lure

Fooling *the* Japanese Beetle

By P. M. Farmer

THE Japanese beetle has been making steady headway in New Jersey and Pennsylvania in recent years, but the entomologists are making headway also and it looks as if this voracious Oriental will meet with some serious setbacks in the near future.

A small army of men in the various States concerned and in the Department of Agriculture has been working from a variety of angles and some of the invader's vulnerable points have been uncovered. One of these is his sense of smell and another is his stomach. The investigators have also been working on means for killing off the grubs in the soil about the roots of plants that are to be moved for transplanting, and going ahead in the introduction and distribution of parasites of the pest.

One of the most interesting developments, however, has been the discovery of geraniol, a chemical with an odor decidedly attractive to the beetles. It was developed after a study of the essential oils derived from the favorite food plants of the insect. Geraniol is one of the constituents of these oils.

A very dilute mixture of this alluring substance when placed in a field attracts the beetles from a

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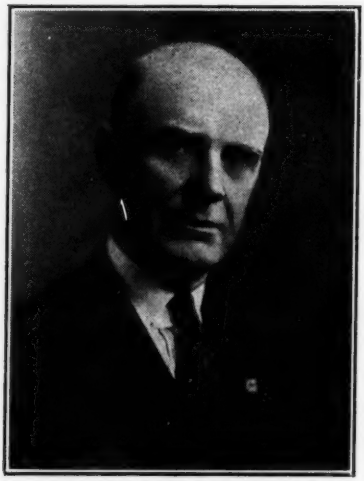


R. C. Jenkins, Father of the Community

Club Work *for*

By H. E. McCartney

Fairmount, Indiana

IN his idea of giving consideration to the community, R. C. Jenkins is giving expression to a new thought in extension service. Out of his idea, the community was made the unit of a new type of club work inaugurated in Indiana last year.

A public-spirited sort of fellow, this farmer, who has held various prominent positions in the affairs of farm folks in his state, is now president of the Indiana State Board of Agriculture—the organization that runs the big Hoosier state fair. He is interested in better agriculture, in better clubs for boys and girls, and better communities. It was with an idea of bringing about a more rapid

The calf club exhibit from the Salem Boy's

the

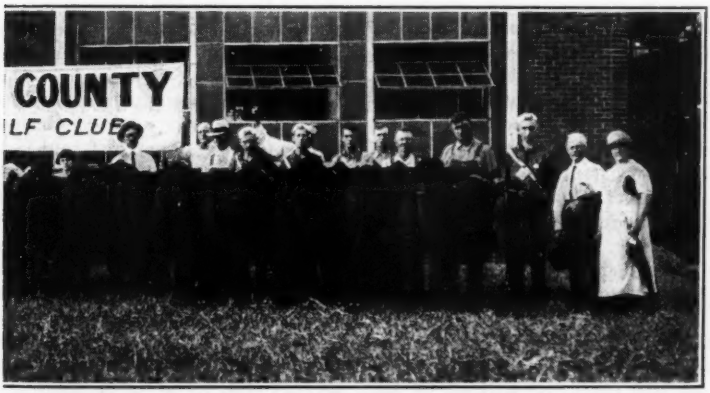
Community

W. C. Branaman, Instructor in Vocational Agriculture

development in a combination of these three that led him to see the possibilities of work through club projects that would include the community.

The community project sponsored by Jenkins happened to be concerned with livestock. Its start came when he was president of the Indiana Livestock Breeder's Association.

"I'll give a handsome and worth while trophy to the township agricultural organization or school in the state that scores the highest in boys' and girls' livestock clubs conducted by the agricultural extension department of the Purdue University and the men's livestock clubs conducted by the Indiana Livestock Association in cooperation," he declared.



and Girl's Club at the Indiana State Fair

F. G. King who served as secretary of the organization over which Jenkins presided saw the merit of the proposition. King holds a high rank in the faculty of the agricultural college of Purdue. Through long and efficient service he has attained a position of considerable influence with the farm folks of the state. He secured approval of the project from those in charge of agricultural extension at Purdue.

A plan was worked out in detail for the project. In very simple terms this plan set forth the conditions and rules. Copies of this were sent to all the schools in the state in which vocational agriculture was being taught. Copies were also sent to the local livestock clubs throughout the state. Newspaper publicity was used to help arouse interest. The extension staff was pressed into service. Men from this department told of the new project whenever opportunity afforded in farmer's short course, institute or other public meeting. The county agents were the fellows who really carried this project over the top. On the firing line as usual, they carried a personal word directly to the schools in their counties and to the local clubs and to the farm bureau which is quite generally organized among the farmers in Indiana. The result of all this promotion was a large and splendid enrollment. A big factor in securing enrollment from the schools and clubs was the fact that the project carried the community idea.

The fact that this community project was devoted to livestock is incidental, only. The principles apply equally well to other types of school work or boy's and girl's clubs or clubs for adults. No doubt Jenkins or some other leader will come forward with a proposition and plan that will be all inclusive or which will concern itself with crops or some other line.

The planning of a score card that would satisfactorily judge the school or township club was a very serious problem. After much deliberation two general divisions were made one of which was for enrollment and the other for completion.

The following basis for credit for enrollment was determined:

Each member from 1 to 10 incl.
1 point
Each member from 11 to 25 incl.
3 points
Each member from 25 to 40 incl.
5 points
Each member from 40 up
10 points

"THE finish is the more important" said the committee in charge. So it was planned to give more credit to those finishing, thus placing credit where credit would be due. In order to carry out this thought it was decided that each club project completed according to the rules should be given a credit of 10 points for the club. This created a big inducement to complete the lines of work undertaken. In addition to the score of 10 for completing a project it was provided that additional credits should be given for winning any of the various medals provided for clubs included in this project.

The boy's and girl's club of the Salem High school won the contest after a year of hard consistent work. At a banquet held last winter during the Farmer's Short Course at Purdue, Jenkins handed them the trophy which they are to hold a year. It is then to be again awarded to the club doing the best all around livestock club work. In case any one club wins it for three years in succession the trophy is to become the permanent property of that club. The Salem folks are

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The clay hill on the Tama Indian Reservation, Tama, Iowa, showing what had happened to this land when the trees were removed

Bringing in Wood

By I. T. Bode

Extension Forester, Iowa State College of Agriculture

IT is time for the American farmer to include trees in his crop list. He is the big wood user of the country and with the reserve supply diminishing so rapidly, the thinking man on the farm should be looking at his idle and unprofitable acres with a view of planting trees to stay off the day when this great natural resource is depleted.

The place of tree planting for woodlot purposes in a typically agricultural state is being demonstrated by two plantations established in connection with the Forestry Extension Service of Iowa.

One of these is a planting of evergreens on a rather steep, eroding hillside in Tama county. The area originally bore timber, was cleared for farming, but in a few years all the top soil was gone and a clay hillside left. About four years ago it was planted to white, red and Scotch pine, and one adjacent sandy strip to jack pine. Today instead of a clay hill there is a remarkably good stand of thrifty trees covering the whole area. The washing of ditches is lessening and the young trees are growing from 12 to 30 inches each year.

The second planting is a forestation project on the shores of Storm Lake in Buena Vista county. In this prairie section there are lakes which are beautiful in themselves,

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Prevention of Decay *in* CITRUS FRUITS

By V. V. Hostetler

Covina, California

THE prevention of decay has been a problem which has confronted citrus growers since the earliest period in the commercial handling of oranges and lemons.

It is recognized that 90 per cent of the decay in citrus fruits is caused by various forms of mold, generally classified as blue mold. Blue mold spores are found in the groves and on the fruit and one infected orange will spread the microscopic fungi through the soaking tank, the brushes and other machinery of the packing house where it will lodge in the tissues of the fruit and germinate under favorable conditions of heat and moisture. While the spores cannot penetrate the rind of the absolutely perfect fruit they will work into the minute scratches, not discernible to the naked eye, caused by thorns or twigs or received in handling.

The icing of fruit temporarily arrests the development of the fungi which become active as soon as the fruit is removed from refrigerator cars.

Until the past few years 5 to 15 per cent of decay was a common condition when the fruit arrived at market and this loss frequently ran as high as 30 per cent or 40 per cent. It is estimated that 5 per cent to 15 per cent decay means from 50 cents to $1.50 loss per box to the grower.

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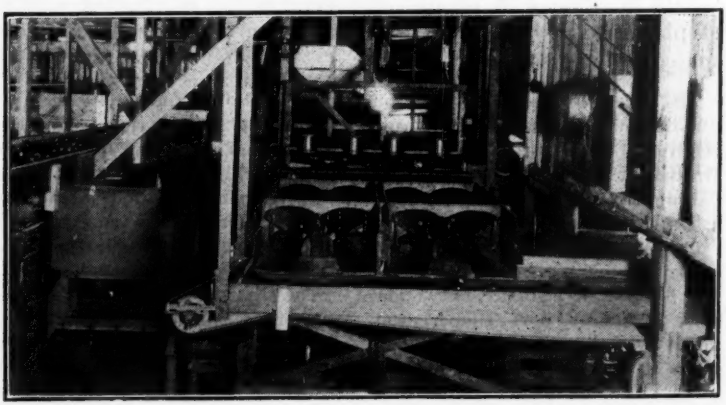

A machine for paraffining citrus fruits

A county and home demonstration agent starting out in the days when even the Ford had not established its reputation

When the County Agent Was New

By A. A. Burger

Cedar Falls, Iowa

Reminiscences by one who has played the game

LITTLE do those engaged in county agent work at the present time realize the trials and the hardships that beset this work when it was new.

Twelve years ago the county agent (he was called at that time by various names, such as county adviser, county agriculturist, crop expert, agronomist, soil expert, etc., depending upon the territory in which he worked) took up his work not knowing what the future of it might be. He knew little of the possibilities of this great movement in American agriculture, nor had he time to reflect upon it because he was concerned primarily in making it a success.

The first county agents were like the ancient mariner adrift at sea steering his bark upon the troubled waters without the aid of chart or compass. There was no organization for him to take over; it all had to be built from the ground up. There was no Extension Department to help him plan his work; they were willing enough to do what they could but he had to do this largely alone. There was no state leader, neither were there any district agents. There were no finances to carry on the work, in fact it was an important part of his business to see that

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Unbending Backs

By M. L. Hopkins

Madison, Wisconsin

AMERICAN inventive genius has not only unbent, in grain harvesting, the backs of weary farmers, tired women, and saddened children, but it has been credited with saving the world from frequent bread famines.

For if we had to reap our grain as did the Romans, it would likely take half of the men in the United States to give us "our daily bread" alone, to say nothing of the rest of the "three squares a day." Without the modern reaper, with its power to speed the sickle, all our modern developments of manufacture, and transportation, of which we are so proud, likely could not save from breadstuffs famines.

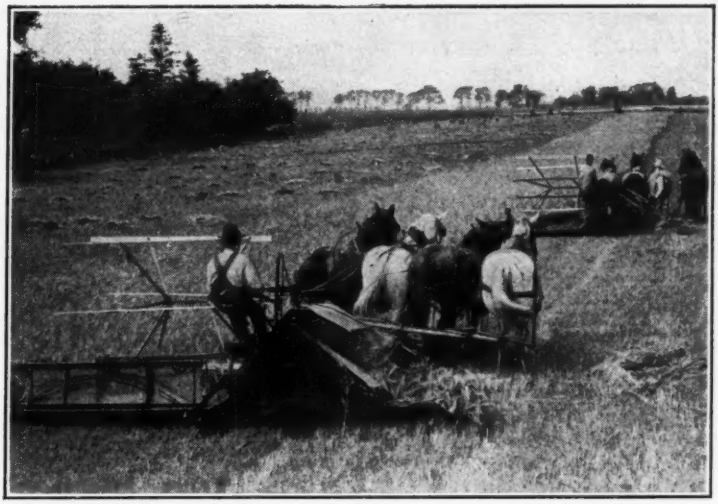
The developments in improved methods of harvesting grain, which have largely transformed the mastery of that branch of farming from muscle to machinery and mind, presents a true fairy tale of American life. The reaper, as we know it today, is the product of many brains. The first practical machine was exhibited in 1831, on a Virginia farm, by

THEN

With the sickle, one man could harvest half an acre a day.

With the scythe, he might do considerably better—possibly an acre a day.

With the cradle, he was able to do still better, sometimes harvesting two and one-half acres a day.



in FARMING

¶ No. 4 of the articles, recording agriculture's improvement in methods

Cyrus Hall McCormick.

Young and ingenious, he hitched four horses to his cumbersome machine and rattled out to a hilly wheat field. Farmers, with backs bent from many laborious harvests, looked with scorn upon the queer machine that was to cut grain without hands. The negroes split their sides with laughter and the laborers lowered threatening looks upon the machine that might take away their right to work 16 hours a day at 3 cents an hour.

By evening McCormick had cut six acres of wheat in less than half a day—as much as six men would have harvested with the old-fashioned cradle. However, elusive fame and wealth were not to be easily won at the close of one successful exhibition. This, McCormick learned to his great disappointment. He soon realized that to demonstrate, to farmers, that grain could be cut with a machine was not sufficient, and that to force the reaper upon unwilling laborers would challenge all of his powers.

NOW

With the first reaper (1831) a man, we are told, could harvest six acres a day.

With the modern binder a man can harvest from 10 to 20 acres a day, depending upon availability of power and conditions of weather and grain.

With the modern tractor, drawing two binders, it is claimed that three men can harvest 40 acres a day.

When Ruth gleaned in the fields of Boaz, she doubtless followed harvesters who used a sickle—a sharp hook which was the first harvesting implement. No improvements were made over this method of harvesting until in Scotland, about the time of our Revolutionary War, some one devised an attachment to the scythe which was called the "Scotch Reaper," but is better known as a "cradle." With the cradle a strong man could cut from one to two acres in a day and lay the grain in a straight swath with the heads all in one direction, ready to be raked and bound into sheaves. But it was slow work, and exceedingly tiresome to the man who swung the cradle, with a peculiar rocking motion, through the standing grain and laid it skillfully in the windrow. Many attempts were made to produce machines which could harvest the wheat, and many failures resulted.—Doudna.

For 10 years the determined lad preached the gospel of the reaper and, seemingly, to no avail until 1841 when he sold two reapers for $100 each. The next year seven daring farmers came to McCormick for machines.

When orders began to come from outside the state of Virginia, McCormick conceived the idea of going West where the soil and climate were adapted to grain raising on a larger scale. In Illinois his Scotch heart was troubled over the sight of hogs and cattle feeding in the wheat fields, which could not be harvested for lack of laborers. Old and young toiled from sun-up to sun-down in the waving fields, but the short harvest season rushed by so fast that tons of grain rotted on the ground.

Immediately McCormick began a frenzied search for a manufacturer who would build his reaper. In Brockport, New York, he found two practical men who appreciated his invention,—Dayton S. Morgan and William H. Seymour. They agreed to make 100 reapers, but in two years so much trouble developed from the relationship that McCormick built a factory of his own at Chicago, where, at last, he won success, wealth, and fame.

Because of McCormick's perseverance and vision, reapers, during the Civil War, were doing the work of a million men in the grain fields of the North. A widow, with five sons, could send them all to the front and still reap all of her grain. In 1861, according to Edwin M. Stanton, "The reaper was to the North what the slave was to the South."

THE Marsh harvester marked the half-way point in the development of the grain reaping machine; it was the first improvement made upon the reaper and became the forerunner of the self-binder. Before the advent of the Marsh harvester the grain was cut and left lying loose upon the ground. It was necessary for the farmers to either stack it loose or bind it into sheaves,—both methods being very slow and involving back-breaking labor.

Two young Illinois farmers, named Marsh, grew weary and impatient with the back-breaking job of stooping over bundles to bind them into sheaves. "If I didn't have to walk from bundle to bundle and hump myself like a horseshoe, I could do twice as much work," said one of the brothers. "Well," said the other, "why can't we fix a platform on the reaper, and have the grain carried up to us?"

Thus originated the idea for the Marsh invention. The brothers discovered that they could bind grain twice as quickly as they had the year before; in addition their

machine gave the farmer his first chance, in binding bundles, to stand erect, and forced him to be quick, for the two men who stood on the harvester had to bind the grain as fast as it was cut.

A reaper salesman of Chicago, Gammon, was so impressed with the Marsh invention that he secured a license to manufacture the Marsh harvester and made William Deering his partner in order to obtain the necessary funds for financing the business. Sometime afterward Gammon became ill, which forced Deering, with no knowledge of reapers, into the managerial position, where he faced the strongest kind of competition from the reaper king, Cyrus Hall McCormick.

The sagacious Deering decided to win, not by fighting methods but by making a better machine. In the search for improvements, he found John F. Appleby, an inventor of the first device that would tie a knot in a string and of the first twine knotter in the world.

Until 1879 the best harvester on the market was a self-binder that tied the bundles with wire. The mechanism, that twisted the wire, was exceedingly simple, consisting of two steel fingers that moved back and forth, and twisted a wire band around each sheaf of grain. The farmers, however, disliked the machine, because the wire would mix with the straw and would kill their stock. Explosions in flour mills resulted, too, from the pieces of wire brought into friction with the machinery.

Consequently, when Deering saw the Appleby twine knotter, he promptly recognized its value. The strong steel arms of the twine binder could flash a cord around a bundle of grain, tie a knot, cut the cord, and fling off the bundle in a truly perfect manner.

The manufacturers of wire binders insisted that the crickets would chew off the twine on the bundles, but their criticism was in vain. Within four years after the twine binder was placed on the market,

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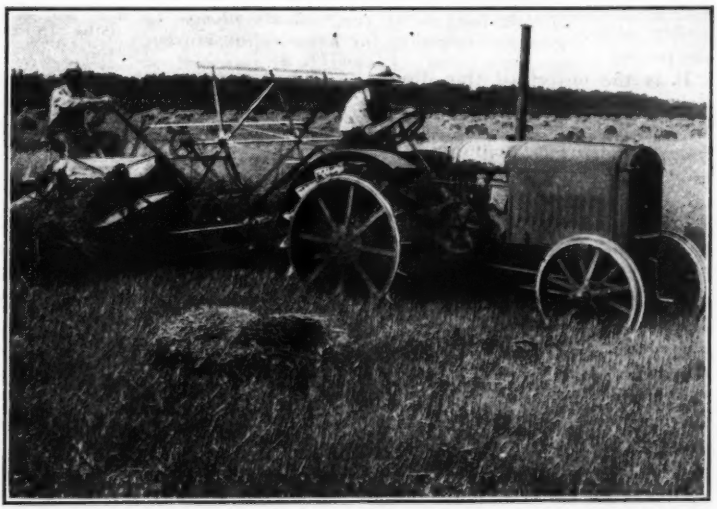

With the modern tractor and two binders three men, it is claimed, can harvest 40 acres in a day

Juicy Apples

By C. L. Burkholder

Purdue Experiment Station

AFTER an apple loses its crisp juicy texture it ceases to be palatable. Such a condition is a very common occurrence unless the fruit is properly handled both at the time it is taken from the trees and during the winter storage period.

A few bushels of fruit should always be wrapped in paper for home cellar storage

It is the object of this discussion to suggest several simple storage methods that are easy to follow and which will result in new appreciation of the greatest of all home grown fruits.

First of all apples must be protected from insect and disease attacks or no system of home storage will be successful. This can only be accomplished by following out a pretty definite spray schedule and applying the sprays in a thorough and effective manner, this keeps the major portion of the fruit clean and sound, as well as nearly free from invisible rot spores when the fruit is harvested. Apples have a rather delicate skin, and for that reason must be handled carefully at picking time. Rolling the fruit from one container to another or dropping it into barrels or boxes, will always result in enough bruised or cut fruit to make an opening for rot organisms to enter.

The too common practice of piling the apples under the trees cannot be too strongly condemned. In such a position they are subject to alternate high and low temperature, which is the ideal treatment if the object is to ripen up the fruit rapidly. If the fruit is to be kept until Christmas or later, the ripening process must be delayed as much as possible. This is done by holding the fruit at a temperature as near 34° as possible.

Most farm homes have a cellar. If there is no furnace the cellar will make a very satisfactory storage room for the entire winter. Allow the freshly picked fruit to stand out on an open porch over night and remove it to the cellar

the first thing in the morning. The previous night all windows and doors to the cellar should be left open and closed early the next day.

After the fruit is in the cellar it should never be stored in open crates or bins. Old sugar barrels with rough board lids make good storage containers. Crates or baskets can be used if they are tightly covered with an old carpet or tarpaulin.

The air in the average cellar is too dry to keep apples crisp. This dry air takes up moisture rapidly from the fruit unless the apples are kept covered. Dirt floors are better than cement for this reason. Cement floors should be sprinkled heavily with water at frequent intervals, even when the apples are in closed containers.

On cool nights open all doors and windows and close them in the morning. This is a great help in holding the cellar temperature as low as possible. If the windows and doors are left open during the daytime it means an alternate high and low cellar temperature, which is always to be avoided.

After cold weather sets in it is important to completely air out the cellar at least once every week. This can be done in the daytime or at night during periods when the outside temperature is not much below freezing. Apples give off gases in the process of ripening which must be removed from the cellar or they will cause what is known as storage scald, especially on such varieties as Grimes, York Imperial, Baldwin and White Pippin.

NOWADAYS many farm homes are equipped with a furnace. When this is the case it is almost impossible to hold down the temperature of the cellar after the furnace is started up. Even special fruit rooms with a door leading into the main cellar rarely keep apples in a satisfactory manner. Under such conditions probably the best plan is to remove the apples from the cellar as soon as the furnace is started.

The old method was to put the apples in a straw pit. Apples stored in this manner kept well, but usually came out with a more

(*Turn to page* 47)

These barrels contain the winter supply of apples. The fruit keeps in a crisp, juicy condition until spring. Farm of Daniel Mazelin, Berne, Indiana

Concentrated Fertilizers

By A. W. Blair

Soil Chemist, New Jersey Agricultural Experiment Station

¶ *This is a live topic among farmers*

A FERTILIZER which analyzes 4-8-3 carries 300 pounds of plant food in a ton. It is easily possible, with high grade raw materials that are gradually being introduced, to mix a fertilizer that will carry three to four times this amount, that is, 900 to 1,200 pounds of plant food per ton.

With the present high freight rates and high cost of labor, can farmers continue to pay handling charges on three or four times as much material as is really required for a given amount of plant food? Sooner or later the farmers themselves will answer this question in the negative. Fertilizer manufacturers have already recognized the particular merits of the high analysis fertilizer, and they are gradually educating the farmer in its use.

THE advantage in favor of the concentrated fertilizer are quite obvious. The following may be mentioned:

1. Saving in freight and handling charges due to the reduction in quantity.

2. The use of high grade materials which are readily available and therefore give the crop a better start and keep it in a better growing condition.

With such fertilizers may there not be some danger of injuring germinating seeds? In answer to this question it may be pointed out that all fertilizers, low grade as well as high grade, are made of chemical compounds, though it is true that some act more quickly than others. If such materials are used in excessive amounts or in a careless manner, they may prove toxic. This is true of a number of chemicals now in use such as the potash salts, nitrate of soda, and ammonium sulfate. It is possible to use enough of any of these to practically inhibit germination or to kill growing plants. Anyone who has had the experience of emptying the contents of the ice cream freezer on the lawn can appreciate this. However, farmers have learned to use such materials with discretion, and they may also easily learn to use fertilizers made from the more concentrated materials with discretion.

Many potato growers in sections where potatoes are the leading crop use a ton and even more of a high grade fertilizer to the acre. If this were spread broadcast, it would amount to less than three-fourths of one ounce per square foot. Certainly this would not be enough to cause injury. If the same fertilizer should be drilled in

A fertilizer analyzing 16 *per cent ammonia,* 18 *per cent phosphoric acid and* 16 *per cent potash was drilled in the row for corn at the rate of* 500 *lbs. per acre for plot* 11 *(left), and* 1000 *lbs. for plot* 12 *(right). Yields,* 87 *and* 103 *bushels shelled corn per acre, respectively. Rows* 42 *inches, with corn dropped* 21 *inches in the row. (To show that liberal amounts of a concentrated fertilizer may be used without injury)*

the row, assuming a spread of 8 inches and rows 32 inches apart, the concentration would be about four times as great or about 3 ounces to the square foot. These 3 ounces would probably be mixed with not less than 20 pounds of soil, which would be approximately a one per cent concentration. This is not a high percentage. In some pot work at this station more than a half pound of acid phosphate was mixed with less than 20 pounds of soil (an exceptionally heavy application) and resulted in excellent crop yields.

But suppose the fertilizer is made four times as concentrated, what will then happen? It then becomes necessary to use one-fourth the amount. This means more attention to the details of distribution. If drilled in the row provision should be made for mixing it with the soil, so that it may not come in direct contact with the seed. The extra attention required for this will be more than offset by the reduction in the amount of material to be handled.

There must unquestionably be a considerable saving if the plant food of a ton of fertilizer could be concentrated into 500 pounds. Furthermore, in making such a concentrated fertilizer, it would be necessary to use high grade materials and these carry plant food in a condition that makes it immediately usable.

EXPERIMENTS conducted at the New Jersey Station have demonstrated that concentrated fertilizers may be used in what may be termed excessive amounts, without appreciable seed injury. For corn they were drilled in the row before planting and mixed with the soil by running the row marker through the row after the fertilizer had been distributed. With a fertilizer analyzing 16-18-16 and applied at the rate of 1,000 pounds per acre, the yield of shelled corn was at the rate of approximately 100 bushels to the acre. On an ad-

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Speeding *up the* Melons

By *Cannon C. Hearne*

State Extension Agent, Missouri College of Agriculture

"WHEN you can get 265 more watermelons averaging nearly three pounds heavier per melon than you have been getting formerly from an equal area, you just can't hold back that 'Watermelon Smile' like we used to have before the weather got so bad," remarked Charles Rushing of Bertrand, Mississippi County, Missouri, as he told of his demonstration results for 1925.

"This 'Smile' naturally widens when we remember that 187 of the 265 increase were in the first pulling in August when melons were highest in price," he continued. "Then, the best part of all is that these 187 early melons averaged 4 pounds more per melon than those from land that we treated as we ordinarily had been treating it."

What caused this great increase in total yield, size of melons, and earliness of maturity? Rushing believes that he obtained these results through close attention to the seven essentials of successful watermelon production for the Southern Missouri district:

1 Control of rodents with mouse poison.

2 Planting seed with a high germination test.

3 Frequent and shallow cultivation.

4 Use of poison to kill the striped and spotted cucumber beetles which lay eggs that hatch into worms that eat the center out of the roots.

5 Application of manure before planting, a complete fertilizer at the rate of about 100 pounds per acre in the hills before planting, a side application of the same fertilizer before the vines run, at a rate of 75 to 100 pounds per acre.

6 Thinning to one plant per hill.

7 Pruning off melons while small leaving two to four per plant.

"WHILE these are all necessary, it is my opinion that the use of the combination of manure and fertilizer show three distinct advantages, namely: it increased the total yield, it increased the size of the melon, and it hastened the maturity of the crop," observed Mr. Rushing. "I feel that of these advantages the last two are the more important."

During last season Rushing grew 40 acres of melons on his sandy land farm near Bertrand in the heart of the commercial watermelon district of the delta region of Southeast Missouri. For years, he has observed that early Missouri melons bring a big premium

Watermelons protected by rye between the rows

over the later crop of the season approximately nine years out of ten. Every successful grower tries to get as many melons out as early as possible. To meet this situation, Mr. Rushing and County Agent R. Q. Brown, planned a demonstration, as a part of the 40-acre field, to use the seven essentials for successful production emphasizing fertilizer treatment, thinning and pruning.

Two plots of equal size were staked out in a part of the field where both plots could have uniform soil conditions. Plot number one received a moderate coating of cotton hulls and barnyard manure. The cotton hulls were refuse from cotton gins and are worth about $4.00 per ton as fertilizer. In 1924, due to early frosts in the fall, much cotton was gathered as half-opened bolls which necessarily produced tons of waste material at each gin. These hulls were shown by analysis to be worth around $4 per ton as fertilizer so growers who were short on barnyard manure used these hulls, which they could get for the hauling.

One hundred pounds of a 3-12-4 fertilizer was applied per acre in the hills before planting. Just previous to the time for the vines to run, a side application of another 100 pounds of the same fertilizer was scattered on top of the ground around the hills 18 or 24 inches from the base of the plant. This was worked into the soil well by cultivation and hoeing. Care was taken to get the fertilizer well distributed around the plants since the feeder roots are many inches from the base of the plant.

The plants were thinned to allow only one strong healthy vigorous plant to remain in each hill.

During the season, the melons were pruned while small so as to leave only two to four per vine.

Plot number two adjoining number one and on similar soil did not get the manure, cotton hulls, fertilizer or pruning. Everything else was handled exactly as in plot one.

THE melons were planted in April. Shortly after planting, the rodent situation was handled by putting out poison bait in tin cans. These loaded cans were placed around fence rows throughout the field. The poison bait used by Mr. Rushing was made according to the following formula: 1 ounce

laundry starch, 1 ounce baking soda, 1/5 pint of corn syrup, and 1 ounce of strychnine alkaloid. The starch was broken with a small amount of cold water to which was added a pint of boiling water to make a gloss starch paste. The baking soda was reduced to a soft consistency with a small amount of cold water. The starch paste was added to this and the mixture thoroughly stirred. The strychnine was moistened with a minimum amount of warm water, then added to the starch-baking powder mixture and stirred. This mixture was poured over 16 quarts of clean grain by measure and mixed thoroughly. About one tablespoonful of this bait was placed in each can to make a bait station.

FREQUENT shallow cultivation was given beginning next to the rows and leaving through the windy season a strip of fall sown rye in the middles between rows as a cover to prevent blowing.

Insect outbreaks were controlled with nico-dust and 10 per cent arsenate of lead powder dusted through a funnel on the beetles before they had had an opportunity to lay any eggs.

The season proved very dry, only one rain falling in this district during the summer. Rushing's melons were late in maturing as compared to previous years. He made his first pulling on August 12. Plot one produced 535 melons averaging 32 pounds each while the best plot two could do was 348 twenty-eight pound melons. On this first pulling, the grower by the use of manure and fertilizer secured an increase of 65 per cent in marketable ripe melons. The difference of four pounds in average weight gave Rushing a higher priced product and 6,314 more pounds of melons to sell at the time of highest price.

The second pulling was made on August 20. Plot one turned out 616 melons this time while plot two had 638. The average weight of the melons on plot two had dropped to 24.6 pounds. The fruit from plot one balanced the scales at an average weight of 27 pounds, so that more pounds of a higher grade product were harvested off of the fertilizer-manure tract.

Unfortunately, the record of the weights on the third pulling were lost, but Rushing states, "I feel sure that the third pulling produced considerably more melons on both plots than were produced at any other pulling and that the total weight produced from the check plot was somewhat greater than that produced from the fertilized plot. However, the melons on this pulling averaged approximately 22 and 20 pounds with the heavier melons coming from the fertilized plot."

Two hundred melons with an average weight of 20 pounds were pulled in September from plot one as a fourth pulling. The check plot pulled 100 eighteen pound melons.

Using the information for the three pullings, fertilizer and manure produced 265 more melons than the no treatment plot. These 265 melons represented 9,296 more pounds in total weight, 6,314 pounds of which came during the first picking, at the time of higher prices.

It is interesting to note that the entire field of 40 acres upon which the demonstration was conducted was, with the exception of about two acres, treated according to that given plot one. This field produced 30 1/2 carloads of melons, which was an excellent yield for the 1925 season.

¶ *No. 6 of Professor White's series*

Kentucky Blue Grass

By J. W. White

Soil Research Chemist, Pennsylvania State College

EASTERN farmers have fully realized the economic importance of a grain rotation and have practiced a more or less standard soil treatment. At the same time, the grazing land has been neglected because of lack of knowledge concerning the possible feeding value of a highly developed pasture.

It is of utmost importance, therefore, to emphasize the value of pasturage by showing the feeding value of the two systems of soil management when carried out on the same soils by using a similar system of fertilization. The following table shows the dry matter, digestible crude protein, and total digestible nutrients produced on an average of the three soils in a rotation of corn, oats, wheat, and grass (mixed clover and timothy) and on an equal pasturage acreage. From the known feeding value of the crops produced in such a rotation, the digestible nutrients are computed (1) on the basis of feeding the entire products including all straw, (2) by feeding only the corn grain, stover, oats, grain, and hay, the common practice in a dairy system. The value of corn grain is computed on the basis of the known value of corn and cob meal.

The pasture area produced, on

(*Turn to page 50*)

Pounds of Digestible Nutrients Produced on Four Acres of Kentucky Blue Grass Pasture as Compared with an Equal Area in a Four-Year Rotation of Corn, Oats, Wheat and Hay—Average of the Three Soils.

	Soil Treatment		
	CaP	CaPK	CaPKN
Field weight of crops (dry matter)—rotation	10,884	14,459	15,637
Field weight of crops (dry matter)—pasture	9,228	11,052	15,968
Total digestible crude protein—rotation.....	449	603	635
Digestible crude protein (excluding wheat and straw)	362	484	500
Digestible crude protein produced on pasture	848	1,375	1,986
Total digestible nutrients produced by rotation	5,340	7,132	7,718
Total digestible nutrients (excluding wheat and straw)	3,566	4,837	4,993
Total digestible nutrients produced on pasture	4,932	5,907	8,535

ARKANSAS

By *James G. Maddox*

University of Arkansas

¶ *Traveling South we stop for a brief visit to the Bear State's experimental fields*

WITH the addition of a 423-acre farm and $45,000 worth of equipment within the last six years, together with the founding of three branch stations, the Agricultural Experiment Station of the University of Arkansas has made an outstanding growth, according to Dan T. Gray, present director of the Arkansas Experiment Station and Dean of the College of Agriculture.

Eighty-five experiments are being conducted at present by an active staff of 36 members representing 11 different departments. Eight bulletins were published by the staff in 1925, and 11 articles written by members of the staff appeared in scientific journals. Notable among the many projects being carried out at present are the studies on vitamin E, conducted by Dr. Barnett Sure, associate professor of Agricultural Chemistry. Experimental work on the bacterial stalk rot of corn, cotton wilt, and sweet potato mosaic has received universal recognition. Sweet potato mosaic was first discovered by Dr. H. R. Rosen, of the Arkansas staff.

The passage of the Hatch bill in 1887 made possible the founding of the Arkansas station, the first official report of which was published in 1888. The first director was Albert E. Menke, who was also professor of chemistry. Subsequent directors were: R. L. Bennett, W. G. Vincenheller, C. F. Adams, Martin Nelson, Bradford Knapp, and Dan T. Gray. No appropriations were made for the purchase of new equipment for Arkansas station until 1919, but since that time there has been a vast increase in both laboratory and field equipment. The Arkansas Legislature of 1925 provided for the installation of three permanent branch stations to include a branch station for rice, a branch cotton station, and a fruit and truck station in the centers of production of these crops.

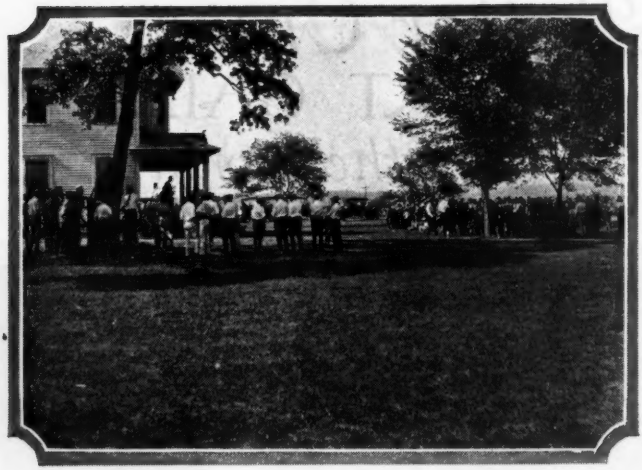
THIRTY-SIX carefully planned experiments are being conducted at present by the department of agronomy. These experiments include a number of long-time projects the results of which may not be published for several years to come. Vice-Dean Nelson, head of the department of agronomy at the University of Arkansas, lays great

(*Turn to page 55*)

Better Crops' ART GALLERY *of the month*

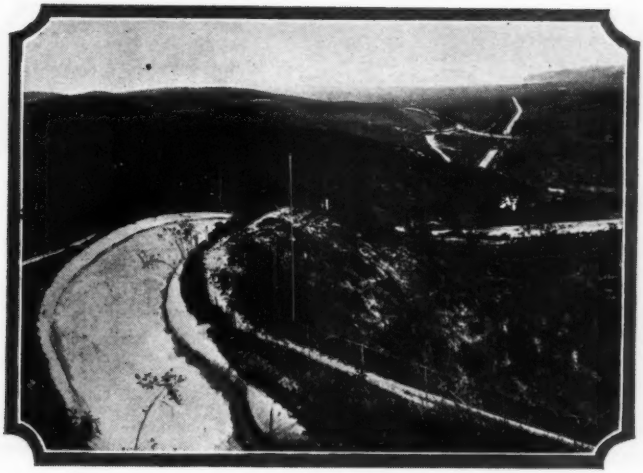
DAN T. GRAY

Dean and Director, College of Agriculture and the Agricultural Experiment Station of the University of Arkansas



Farmers of the state regularly take advantage of viewing the splendid work being done at the Arkansas Experiment Station Farm. The farm consists of 550 acres.

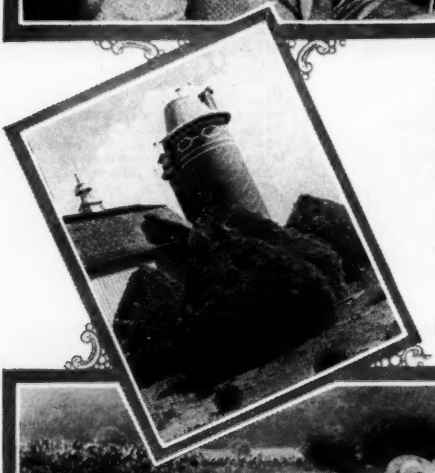
The Experiment Station Staff, College of Agriculture, University of Arkansas.



This Los Angeles aqueduct carries water from melting snows in the mountains to orange groves. It is 238 miles long and has a capacity of 260,000,000 gal. a day.

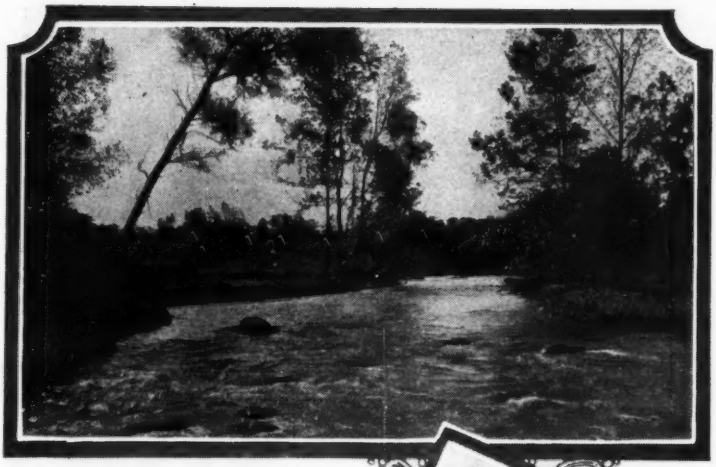
Attorney General Sargent and Mrs. Sargent in the garden of their home at Plymouth, Vt.

Few people in the world know more about horses, mules, and dogs than John Oscar Williams, livestock expert of the United States Department of Agriculture. He is a prominent writer on the subject and a judge at horse shows.



Signs of Fall

The road to the schoolhouse—Thousands of boys and girls this month are unwillingly retracing the steps they skipped so happily last June.



A bit of Indiana

There may be little agriculture at Atlantic City, yet here is Miss Ruth Richardson, the Kansas Wheat Girl, who will represent Wichita at the Atlantic City beauty pageant. She will spread the glories of Kansas Wheat while in the East.

Spuds to right of me—Spuds to left of me—Spuds in front of me—A large field of potatoes on the farm of Pete Johnson, Berthold, North Dakota.

A familiar scene on thousands of farms at this time of year. A larger wheat crop, with less oats and barley, than grown last year, is predicted.

A pretty Boston girl sizing up three giant watermelons, weighing 80 lbs. each, recently received in a large shipment.

The flapper of the chickens—bobbed and marcelled this fowl was quite the envy of others exhibited at a recent Seattle poultry show.

The Editors Talk

"We may talk what we please of lilies, and lions rampant, and spread eagles in fields d'or or d'argent: but, if heraldry were guided by reason, a plough in a field arable would be the most noble and ancient arms."—Abraham Cowley.

HAVING written "Aration and Rural Oeconomy" let us hasten to add that these words did not originate with us. They are merely the titles of courses proposed by Abraham Cowley some 300 years ago as a part of a program for an agricultural college. Cowley knew very well the inertia content of human nature, for he said that such colleges would not be founded, at least for a very long time The first one, organized well more than 200 years afterwards, proved him correct.

"ARATION AND RURAL OECONOMY"

The interest today in what Cowley wrote is not so much in his perfect score of forecasting. It is in the fact that human nature and its problems of agriculture are much the same today as they were then.

For instance, today we hear that farming is not so profitable as industry. The cities are said to reap the greatest profits. Cowley, some centuries ago, said, "The utility (I mean, plainly, the lucre of it) is not so great now in our nation as arises from merchandise and the trading of the city."

Cowley also tells us of men "bred up apprentices" in agriculture, "but when they come to be men, they have not the wherewithal to set up in it." The same questions of capital, credit, and profits exist today. They have lasted for 300 years.

WHAT DID COWLEY VALUE IN AGRICULTURE THAT MADE IT WORTH WHILE? "The utility of it to a man's self; the usefulness, or rather necessity, of it to all the rest of mankind; the innocence, the pleasure, the antiquity, the

dignity. One delight more—that is the satisfaction of looking around about him and seeing nothing but the effects and improvements of his own art and diligence."

Values are varied—cities can supply many—rural activities others. They never can be the same.

This month thousands of students are pouring into the agricultural colleges. They will study far more than "Aration and Rural Oeconomy." Let them keep in mind in choosing agriculture as their life's work that their success depends upon the pure enjoyment in and satisfaction of service rendered their profession more than upon the mere financial returns from their work.

Posterity pays every man his honour.—Ben Johnson.

TIME TO RE-TREE

IT cost less than $7,200 to discover America. Six times that sum was spent by the Roosevelt expedition to bring one Tien Shan Buck sheep from Asia. The United States spends $1,140,000 a day to maintain its navy—as much as is being spent in nine years for reforestation. Two and one-half days' expenses for prohibition enforcement equal a year's expenditure for reforestation. In 1925, 7,500 acres of land were reforested by the Federal Government, while in the state of Washington alone in that year 20 times that area was cut over.

These statistics, recently given at a California meeting of lumbermen, coupled with the fact that the population of the world is increasing at the rate of 50,000 a day, ought to make even Mr. "I Should Worry" sit up and take notice. He may not own a woodlot, but he has a vote. In New York state alone there are six million acres of farm land idle. If taxes on these abandoned areas were low enough to induce private owners to wait the long time necessary for a reasonable profit, these acres might be growing trees. In many instances the government should take these areas for reforestation purposes.

Farmers are being encouraged to take care of their woodlots. It is time for EVERY ONE of us to consider the woodlot of our future generations.

OUR country is not loved. The comings and goings of Americans traveling in Europe for pleasure are constantly marred by the expression of this dislike.

NO APOLOGIES FOR AMERICA

Causes are many: the habits of tourists; lack of understanding; and the present or prospective burden of paying the foreign debts.

Advice, explanations, and apologies are common currency in the present exchanges of thought. It is, therefore stimulating to receive from an English correspondent who knows America well, a brief account of his feeling toward the wrath that blows to our shores.

"I am tired of the American debt. I am coldly contemptuous of the heroics both in England and in France. I think the Americans are wise to hold aloof from Europe, or at least to associate themselves with European welfare only step by step—with European politics never, and politics are what are at work here. The statesmen of Europe flattered the rage and vanity of their people by promising them the impossible with regard to German reparations they knew could not be carried out.

"They sowed the whirlwind and kick at reaping it. Do I sound angry? I cannot help it. I am so contemptuous of the blind self glory of national feelings.

"The Allies settled the debt to suit the party schemes of politicians. The blind passions of the nations made them as clay to the politicians' hand. Now that the consequences of inevitable economic laws are at hand and parties must account for themselves and their policies, the politicians are scuttling to American cover again.

"A few clods of mud thrown at America and the public 'mind' is diverted safely from inquiry into the wisdom and foresight and integrity of its leading men and its newspapers.

"I SHALL APOLOGIZE NEVER AND FEEL NO DISCOMFORT AT MY LONG RESIDENCE IN THE UNITED STATES. I feel the same towards the unthinking abuse and uninformed criticism of America as I do towards some people's breakfast, dinner, and supper diatribes against women and everything modern and human—it is all so futile and piffling.

"Recognition of evil is quite all right in its proper balanced proportion to cheerful, healthier thinking, but hammered on the same note, whether it be the American debt or any other 'evil', becomes a pure bore . . .

"I read in the paper today that the ideal for an English 'gentleman' or 'lady' is to be 'retenu' (which I take to be a self-contained attitude of restraint) and that, according to the paper, the kindness and consideration peculiar to Americans only served to emphasize the unpleasant actions of their individuality.

"How does that strike you for distorted reasoning? Am I right in suspecting the 'retenu' to be a form of safety first with regard to social standing, originating more in timid stupidity and lack of human breadth of expression than in the high breeding the writer wishes to infer may exist?

"Well enough—but I will not be shaken any more like a reed in the wind of wrath that is blowing towards America."

I SHALL APOLOGIZE NEVER AND FEEL NO DISCOMFORT AT MY LONG RESIDENCE IN THE UNITED STATES! Uttered by an English traveller, this thought should accompany every American abroad. Of the requisites to enjoyable and comfortable European travel today, time, money, and consideration for others are essential—but above all are required moral courage and independent thinking.

Our grand business undoubtedly is, not to see what lies dimly at a distance, but to do what lies clearly at hand.—Carlyle.

DIGGING

HARD work means nothing to a hen. She just keeps on digging worms and laying eggs, regardless of what the business prognosticators say about the outlook for this or any other year. If the ground is hard, she scratches harder. If it is dry, she digs deeper. If it is wet, she digs where it is dry. If she strikes a rock, she digs around it.

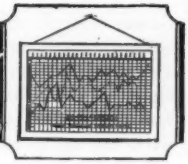
If she gets a few more hours daylight, she gives us a few more eggs, but always she digs up worms and turns them into hard shelled eggs (profits) as well as tender, profitable broilers.

Did you ever see a pessimistic hen? Did you ever hear of one starving to death waiting for worms to dig themselves to the surface? Did you ever hear one cackle because the work was hard?

Not on your life. She saves her breath for digging and her cackles for eggs.

SUCCESS MEANS DIGGING.

AGRICULTURAL DEVELOPMENTS



By P. M. Farmer

Yields Are Bigger

Per acre yields of crops in the United States have been increasing slowly during the past 40 years, says the Department of Agriculture. This is contrary to common belief but the Department insists that not an inconsiderable part of the increase in volume of production of important crops has been due to higher acre yields. Some of the figures given by the economists are surprising and all are interesting: The per acre yield of corn is said to have increased 18 per cent since 1885; wheat yields have increased 17 per cent; oats 14 per cent; and potatoes 39 per cent. In 40 years the combined acreage of corn, wheat, oats, and potatoes has been increased 52 per cent but the total production of these crops went up 72 per cent.

This study shows that the farms in the older sections are not wearing out. Most of the increases in acre yields have taken place east of the Mississippi, the most outstanding improvements being in the North and South Atlantic States and in the East North Central States.

What the future will bring to acre yield, the economists say, will depend to a great extent on prices. Rising values normally will result in more intensified farming and a higher level of soil productivity, better cultivation methods, more suitable rotations, more efficient use of crop residues, animal manures, greater use of commercial fertilizers and the more common use of selected seed.

Now Is the Time

"Agricultural enrollments in colleges have begun to come back," says Secretary Jardine. "There were a few more freshmen last year than the year before. Now is the time, in my estimation, to study agriculture. There are opportunities for trained young men.

"One of the unfortunate facts, brought out by investigations, is not only that the enrollment in agriculture has fallen but that the enrollment of country boys and girls in all courses has dropped. Country boys and girls are entitled to as good training as city boys and girls. Moreover, the Nation needs the wholesome influence of well trained rural youth. If a country boy doesn't want to study agriculture, there are plenty of other things for him to study.

"I realize the financial difficulty encountered in the last few years by farmers. I know that thousands of farm families cannot afford to send their children to college. But where a family can afford it or where a boy has a chance to earn his way, there is no better investment for the future of American farming and American culture generally."

What's Good For Us

Our gastronomic history has been just one scare after another —and a good many of them without any foundation of fact. Of course, we all know that it is a good thing to know your mush-

rooms before starting out with a basket to collect them. That is a rule that has been good for a long time. But for many years the tomato was put in the same class with the dangerous toadstool, and now it is one of our favorite foods.

Recently the Kansas State Agricultural College called attention to two common fallacies regarding what is good to eat and what is bad. The statement denies that it is bad for the stomach to take milk or cream with acid fruits and urges people to be free to follow the dictates of their appetites if they call for milk or cream with oranges or grapefruit or berries. The food expert also said there is no need to soak cucumbers in salty water to "draw out the poison." This vegetable, it is said, does not need to be soaked nor salted unless you happen to like the salt.

Post-Mortem Milking

Dairymen and those who are supposed to know even more about the inner workings of the dairy cow have long thought that much of the milk drawn was manufactured in the udder during the milking process. Recently W. W. Swett of the Bureau of Dairy Industry, U. S. Department of Agriculture, has shown that no such thing occurs. He has demonstrated that what the milker gets from the cow's udder is just about what the udder contained when he began milking.

Mr. Swett demonstrated this fact by killing two cows in milk, then cutting off their udders and milking them out just as if they were still attached to the cow. One thing he found was that the cow's udder is capable of holding from 11 to 20 quarts of milk instead of only a quart as has been commonly taught.

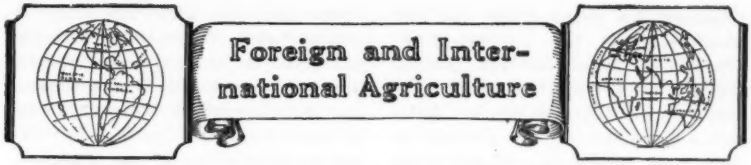
Although Mr. Swett does not claim that his experiments are conclusive he thinks he has shown that milk secretion is to a large extent a continuous process.

Apple Wipers

A new development in the marketing of apples has resulted from objections to fruit with excessive spray residue on it. Now the northwestern growers are rushing to avoid future difficulty with the trade such as was experienced last year. Many packing houses are putting in wiping machines, one association alone having ordered 100 machines at $500 each. Nowadays when a new machine is needed it seems to appear almost as if by magic. When the walnut growers wanted a branding machine they advertised a reward for it and in a remarkably short time they had it.

Healthy Cows—Healthy Hogs

As tuberculosis is gradually knocked out in the cattle herds it disappears from swine. An Iowa packing company, which has "kept books" on losses from TB hogs for seven years, has made a report to the United States Department of Agriculture. In 1919 the loss resulting from these condemnations amounted to 75 cents on each hog slaughtered. The next year the loss was down to 66 cents, in 1921 to 49 cents, in 1922 to 32, and the past year it was only 26 cents on each hog slaughtered in the plant. The company gives the credit to the tuberculin test applied to cattle. The same concern reports in Hardin county, a "modified-accredited" area, from which 11,000 hogs were shipped in a 9 months' period, an average loss from tuberculosis of only 4.7 cents each.



The purpose of this department is to help us understand the scientific, practical, and industrial agriculture of other countries and the international developments which result. The editor believes that such knowledge is now of the greatest importance in our agricultural prosperity. Every care is taken to insure accuracy—both of facts and their interpretation.

Cotton Abroad

By C. E. Trout

Economist, United States Department of Agriculture

THE United States still holds the dominant place in the production of the world supply of cotton and all efforts by European nations to develop cotton production in other parts of the world have not, as yet, offered a challenge to American supremacy.

Especially does the United States lead in producing cotton for international trade. British India and Egypt are still the only other important producers of cotton that goes into world trade. China produces about 2,000,000 bales each year, but almost all of it is used at home and some cotton in addition is imported. The efforts to increase cotton production in various parts of the world are going ahead, however, and they deserve the careful attention of the producer in the United States.

While parts of both North and South America outside the United States have possibilities of increasing cotton production, the most effort is seemingly being made by European countries to develop the industry in their colonies and dependencies. These areas are scattered over Africa, Asia, Australia and the islands of the sea. Some European countries are giving semi-official backing to cotton production. As cotton importing nations they are very anxious to have supplies come from their own territory and to be free from absolute dependence upon the United States.

So far the cotton produced in these European colonies has been a very small percentage of the total amount used in European mills, but some very definite gains have been made in certain regions, especially in British African possessions. One estimate states that the total production of cotton in the British Empire, leaving India out, has increased more than 40 per cent each year since 1921-1922. The total production for the Empire, not counting India, for the season of 1924-1925 was only 293,000 bales, however, or less than the production in the state of Tennessee, and only about one per cent of the world's production. The bales referred to are of 500 pounds each which gives 478 pounds net weight of cotton fiber.

World production had increased

steadily for many years until it first reached the equivalent of 25,000,000 bales of 478 pounds each in 1911. The season of 1914-1915 more than 28,000,000 bales were produced, but as a result of the war, production dropped off the following years. The smallest production since that time was in 1921-1922 when there was only 15,300,000 bales. It has increased each year until it reached 24,700,000 bales in 1924-1925, and the forecasts for the season of 1925-1926, according to the United States Department of Agriculture, indicate some increase over that figure. The United States Department of Commerce estimates that the commercial crop last year was more than 23,000,000 bales compared with nearly 25,000,000 bales in 1914-1915, indicating production almost back to its peak.

NEXT to the United States which exported about 8,000,000 bales of cotton during the season 1924-25, the most important exporting country is British India with a record of nearly 3,000,000 bales last year. Egypt comes third with about 1,500,000 bales in 1924. No other country exported as much as a million bales. Peru, Brazil and Mexico followed Egypt, but all of them together furnished less than 500,000 bales to the commerce of the world.

The Sudan region in Africa is one of the British colonial possessions in which cotton growing is rapidly increasing and is expected to become still more important. In 1924 the production in the Sudan amounted to about 36,000 bales of 478 pounds net. Reports by government agencies state that progress is being made towards a big crop next season. In fact preliminary reports by the International Institute of Agriculture at Rome put the 1925-1926 crop at 86,000 bales. This large increase is due to the extension of the area planted to cotton in Gezira following the completion of a large irrigation dam. Estimates by the Sudan authorities of the total cotton producing capacity of the territory when fully developed run up to 300,000 bales.

Cotton is gaining importance in Nigeria, another section of North Africa. The production has been increasing for several years, but is still very small in proportion to the possible area that can grow cotton, commercial agencies say. In 1924, production amounted to about 25,000 bales. Expansion of the cotton area in French North Africa is expected according to reports received by the United States Department of Agriculture. Cotton is becoming a more important crop in Algeria. The forecast was for some 10,000 acres to be in cottonf for the 1925-1926 crop. This is twice the acreage planted in 1924-1925. That crop amounted to a little more than 2,000 bales. In Morocco experiments indicate that cotton may be a profitable crop in the future.

Mozambique, Portuguese East Africa, is another region where cotton is being tried, but success is not yet assured. Uganda, still another section of Africa, has approximately 500,000 acres in cotton and a possible acreage estimated at 2,000,000 acres. It produced about 127,000 bales in 1924-1925, an increase of 35 per cent over the previous year. Governmental aid is stimulating the industry, seed for planting being distributed free of charge for one thing. The principal types of cotton are long staple upland American.

Interested agencies claim that the area suitable for cotton production in the Union of South

Africa will reach 4,000,000 acres. Production in that country has been growing very rapidly and reports indicate an increase of more than 300 per cent last season over the year before. This increase brings the total production to only about 25,000 bales, however. The area devoted to cotton in Southern Rhodesia jumped from 4,000 acres in 1923-1924 to 70,000 acres in 1924-1925. Cotton is said to be a very desirable crop for the section as it fits into a good crop rotation.

An English company is reported to be developing more than 100,000 acres for growing cotton in Iraq in Asia. Even so production in 1924-1925 was less than 2,000 bales. Syria has grown some cotton for many years and interest is increasing, but production is small, some 6,000 bales being exported last year. In New Caledonia, a French possession in the Pacific, the limiting factor in cotton production is the small population and lack of labor. The average annual crop in the New Hebrides, another French possession, could easily be increased from the present 500 bales to several thousand, according to the French authorities. Some increase in production is reported from the Dutch East Indies.

The Australian cotton crop in 1924-1925 is estimated at 12,500 bales of 478 pounds, an increase of about 42 per cent over the year before. This was grown on about 50,000 acres. Queensland produces practically all of it. Since 1920 the Queensland government has encouraged cotton growing by providing seed for planting free of charge and by paying a guaranteed price. As a result production has increased approximately 2,000 per cent since 1921.

Cotton is or can be grown in other parts of the world. Turkish officials claim that practically all the cultivated area of Turkey in Asia is suitable for cotton. Asiatic Russia produced nearly 500,000 bales in 1924. Persia is credited with about 100,000 bales. Italy, Greece and Bulgaria each produce a few thousand bales; and Korea produces more than 100,000 bales each year. These areas are outside the countries which at present produce the commercial crop of the world. Cotton production also has possibilities in South America, but is not being developed by the European consuming nations as are the regions mentioned.

Harvest in Egypt—Picking cotton is the same all over the world

Prevention of Decay

(*From page* 14)

Many experiments for the prevention of decay have been made. Many disinfectants either injured the fruit, were dangerous because of their poisonous properties or were too expensive to be practical.

In the summer of 1923 a borax treatment was patented for the destruction of blue mold spores. By the process the fruit is kept for seven minutes in a solution of 10 ounces of borax to a gallon of water which is maintained at a temperature of 115 to 120 degrees. The fruit is next washed in the same solution and is then rinsed but care is taken to leave an undiscernible film of the solution upon the fruit. After passing through the drier for 10 minutes the fruit is sprayed with liquid paraffin which is applied with an atomizer worked by compressed air. The paraffin is thoroughly rubbed into the pores of the fruit by a system of brushes.

The paraffin treatment, which has also been patented by the originators of the borax method, is for the purpose of sealing the fruit and preventing the evaporation of its juices. By so doing the orange or lemon retains its original plumpness, firmness and flavor. The skin does not shrivel and the "stale taste" is prevented.

The Walnut Fruit Growers Association at Walnut, California, was the first house to try out this treatment and shipped its entire 1923-1924 crop of 265 cars without ice. The experience of this association was watched with great interest by all citrus shippers of California and Florida and as a result from 100 to 150 cars of fruit were treated daily by this method during the 1924-1925 shipping period.

Licenses for the process were purchased in the Fall of 1924 by the Mutual Orange Distributers, who are second only to the California Fruit Growers' Exchange in the shipment of California citrus fruits. All the M.O.D. houses in Southern California, numbering about 25, now treat their fruit by this process. The patentee receives a royalty per box. Without considering the saving of fruit the cost of the treatment is but a fractional part of that of precooling and refrigeration.

THE treatment seems to have successfully met every kind of test. One association manager reports that during the last season, although the fruit was cleansed with difficulty after extreme orchard heating, less than one per cent of the cars shipped showed decay.

Shipments under very unfavorable ventilating conditions by boat to Vancouver, B. C., proved equally successful

A car of processed Valencia oranges was kept for three weeks in cold storage at Covina, California, at an approximate temperature of 40 degrees, was then shipped under standard ventilation to Winnipeg, Manitoba, without a pound of ice and arrived perfectly sound.

Another packing concern gives the following comparative figures: during 1923-1924 prior to the adoption of this system 5 per cent of decay in three different cars of the Christmas pool, several other cars showed decay in February and 10 per cent decay was found in a car shipped March 1. The remainder of the crop was iced. The following season with the borax and paraffin treatment only two cars were iced and the com-

(*Turn to page* 50).

REVIEWS

This section contains a short review of some of the most practical and important bulletins, and lists all recent publications of the United States Department of Agriculture and the State Experiment Stations relating to Soils, Fertilizers, Economics, Crops, Crop Diseases, and Insects. A file of this department of BETTER CROPS would provide a complete index covering all publications from these sources on the particular subjects named.

Fertilizers

A practical and interesting method of determining the fertilizer needs of the corn crop has been proposed by Dr. G. N. Hoffer in Bulletin No. 298, published by the Purdue University, Agricultural Experiment Station, Lafayette, Ind. The bulletin is called "Testing Corn Stalks Chemically to Aid in Determining Their Plant Food Needs," Bulletin No. 238.

The purpose of the bulletin is to assist in interpreting the general causes of malnutrition by describing the symptoms as shown by corn plants. These symptoms are recognized by the appearances of the leaves and stalks, and by making chemical tests of the inner tissues of the stalks. By making these tests it is possible to diagnose soil deficiencies of either nitrogen or potassium. The interpretation of a phosphorous deficiency involves the results of these tests as well as the test of the soil for acidity.

The tests are described in detail. The bulletin is a contribution to our knowledge of the corn crop especially as it is a correlation between the physiological study of the crop as a unit of yielding power, and the soil in which the crop is grown. In our opinion, it is by studying physiological and soil problems together that more progress will take place in solving many of the problems of crop production. The above tests are in no way intended to supplant experimental plots.

We are glad, therefore, to read a very interesting account of "The Soils Experiment Fields of Missouri" by F. L. Duley and M. F. Miller. Missouri has studied the important soils of the state by means of field experiments since 1905. Twenty-five fields have been used. Results show that phosphates have given most profitable yields on wheat, clover, and alfalfa. Most of the soils have given good returns from phosphates and manure. Lime has been profitable on some soils on clovers and alfalfa. Potash has given only slight increases on most fields. Rock phosphate has given only slight returns. The second part of the bulletin gives the results of individual fields with an interesting series of maps.

"The Reaction Between Calcium Sulphate and Sodium Carbonate and Its Relation to the Reclamation of Black Alkali Lands," College of Agriculture, University of Arizona, Tucson, Arizona, Technical Bulletin No. 6, January 15, 1926. J. F. Breazeale and P. S. Burgess.

"Fertilizer Registrations for 1926," New Jersey Agricultural Experiment Stations, New Brunswick, N. J. Bulletin 431, January, 1926. Charles S. Cathcart.

"Sources of Ammonia," S. C. Agricultural Experiment Station, Clemson College, South Carolina, Bulletin 227, May, 1926. J. J. Skinner and T. S. Buie.

Soils

"A Study of the Colorado River Silt," College of Agriculture, University of Arizona, Tucson, Arizona, Technical Bulletin No. 8, March, 1926. J. F. Breazeale.

"Methods for Determining the Replaceable Bases of Soils, Either in the Presence or Absence of Alkali Salts," College of Agriculture, University of

Arizona, Tucson, Arizona, Technical Bulletin No. 9, April, 1926. J. F. Breazeale.

"Soil Acidity in Connecticut," Connecticut Agricultural College Extension Service, Storrs, Conn., Ext. Bulletin No. 101, July, 1926. M. F. Morgan.

"The Bimonthly Bulletin," Ohio Agricultural Experiment Station, Wooster, Ohio, Vol. XI, No. 4, Whole No. 121, July-August, 1926.

Crops

"High Altitude Vegetable Growing," Colorado Experiment Station, Fort Collins, Colorado, No. 309, May, 1926. R. A. McGinty.

"Common Weeds of Colorado Lawns," Colorado Experiment Station, Fort Collins, Colorado, Bulletin No. 310, May, 1926. L. W. Durrell.

"Hereditary Correlation of Size and Color Characters in Tomatoes," Agricultural Experiment Station, Iowa State College of A. and M. Arts, Ames, Iowa, Research Bulletin No. 93, June, 1926. E. W. Lindstrom.

"The Selection of Seed Cane," Louisiana State University and A. and M. College, Baton Rouge, Louisiana, Bulletin 195, July, 1926. C. W. Edgerton, W. G. Taggart and E. C. Tims.

"Soybeans for New Jersey," New Jersey State Agricultural College, New Brunswick, N. J., Extension Bulletin 55, June, 1926. Herbert R. Cox.

"Spring Cauliflower in New Jersey," New Jersey Agricultural Experiment Station, New Brunswick, N. J., Bulletin 432, June, 1926. Howard F. Huber.

"Bimonthly Bulletin," Ohio Agricultural Experiment Station, Vol. XI, No. 3, May-June, 1926, Wooster, Ohio.

"Director's Biennial Report, 1922-1924," Oregon Agricultural College, Corvallis, Oregon.

Economics

"Production Costs and Market Distribution of Arkansas Peaches," College of Agriculture, University of Arkansas, Fayetteville, Arkansas, Bulletin No. 207, June, 1926. C. O. Brannen.

"Farm Mortgage and Commercial Bank Loans to Farmers in Arkansas," College of Agriculture, University of Arkansas, Fayetteville, Arkansas, Bulletin No. 208, June, 1926. C. O. Brannen.

"Illinois Crop Reporter," U. S. D. A., Bureau of Agricultural Economics, cooperating with Illinois Department of Agriculture, Circular No. 355, July 1, 1926. A. J. Surratt.

"Cotton Production in Texas," Texas Agricultural Experiment Station, College Station, Brazos County, Texas, Circular No. 39, April, 1926. L. P. Gabbard and H. E. Rea.

"Wheat Exporting from the Pacific Northwest," State College of Washington, Pullman, Washington, Bulletin No. 201, May, 1926. John B. Watkins.

"An Economic Study of Berry Farming in Western Washington," State College of Washington, Pullman, Washington, Bulletin No. 204, June, 1926. Neil W. Johnson and Geo. Severance.

Diseases

"The Spindle-Tuber Disease as a Factor in Seed Potato Production," College of Agriculture, University of Nebraska, Lincoln, Nebraska, Research Bulletin 32, May, 1926. H. O. Werner.

"Preparation of Bordeaux Mixture," N. J. Agricultural Experiment Station, New Brunswick, N. J., Circular 190, June, 1926. Dept. of Plant Pathology.

"Cherry Leaf Spot," N. J. Ag. Exp. Sta., New Brunswick, Cir. 191, June, 1926. Dept. of Plant Path.

"Potato Blights," N. J. Ag. Exp. Sta., New Brunswick, Cir. 192, June, 1926. Dept. of Plant Path.

"Tomato Leaf Spot," N. J. Ag. Exp. Sta., New Brunswick, Cir. 193, June, 1926. Dept. of Plant Path.

"The Melon Blights," N. J. Ag. Exp. Sta., New Brunswick, Cir. 194, June, 1926. Dept. of Plant Path.

"Celery Blights," N. J. Ag. Exp. Sta., New Brunswick, Cir. 195, June, 1926. Dept. of Plant Path.

"Maple Leaf Scorch," N. J. Ag. Exp. Sta., New Brunswick, Cir. 196, June, 1926. Dept. of Plant Path.

"Horse-Chestnut Leaf Blotch," N. J. Ag. Exp. Sta., New Brunswick, Cir. 197, June, 1926. Dept. of Plant Path.

"Eliminating Wheat Diseases," Agricultural College Extension Service, Ohio State University, Columbus, Ohio, Crop Talk No. 36, July, 1926. Wallace E. Hanger.

Insects

"Life History and Habits of the Thurberia Bollworm," College of Agriculture, University of Arizona, Tucson, Arizona, Technical Bulletin No. 7, February, 1926. C. T. Vorhies.

"Fleas and Bed-Bugs," Agricultural Experiment Station, Michigan State College, East Lansing, Michigan, Circular Bulletin No. 94, June, 1926. Eugenia McDaniel.

"The Cotton Flea Hopper," Texas Agricultural Experiment Station, College Station, Brazos County, Texas, Bulletin No. 339, April, 1926. H. J. Reinhard.

"Control of the Cotton Flea Hopper in Texas," Texas Agricultural Experiment Station, College Station, Brazos County, Texas, Circular No. 40, July, 1926. H. J. Reinhard.

"Field Studies of Sugar-Beet Nematode," Utah Agricultural Experiment Station, Logan, Utah, Bulletin 195, May, 1926. George Stewart and A. H. Bateman.

"The Fruit Tree Leaf Roller and Its Control by Oil Sprays," Utah Agricultural Experiment Station, Logan, Utah, Bulletin 196, June, 1926. I. M. Hawley.

"The Pear Leaf Blister Mite as an Apple Pest," Utah Agricultural Experiment Station, Logan, Utah, Bulletin 197, June, 1926. I. M. Hawley.

"The Pink Bollworm, with Special Reference to Steps Taken by the Department of Agriculture to Prevent Its Establishment in United States," U. S. D. A., Department Bulletin No. 1397, June, 1926. W. D. Hunter.

Juicy Apples

(*From page 21*)

or less "dirt flavor". This can be entirely avoided by having the apples in barrels with burlap tacked over the tops. Turn the barrels on the side, end to end, and cover with straw and dirt. Allow the dirt to freeze to a depth of two or three inches, then throw on another layer of straw and a second layer of dirt. The barrels are thus enclosed in a jacket of frozen dirt which holds the apples at a low temperature.

An entire barrel or part of the fruit from the end barrel can be removed as needed, and the rest of the fruit left under ideal storage conditions as far as moisture and temperature are concerned. The writer has eaten fine, crisp, Jonathan apples in May which were handled in this manner.

* * *

Which and Why?

(*From page 6*)

A study using varying amounts of potash with corn on an Iredell loam soil in Davie county was found interesting. A mixture containing 10 per cent of phosphoric acid, 6 per cent nitrogen and 2 per cent potash was used as the base. Increases by two per cent of potash were made until the mixture contained six per cent. Each increase was found profitable.

An 8-7-3 fertilizer was found best for cotton on a Norfolk Sandy Loam soil in Wayne county. The addition of potash to a 12-4-0 mixture by increments of two per cent until the formula contained six per cent of potash gave profitable returns with cotton on an Alamance silt loam soil in Union county. With corn on the same soil two per cent of potash was found best. Increases above this amount were not profitable.

With wheat on a Rowan county farm, 600 pounds of a mixture containing 12 per cent available phosphoric acid, 5 per cent nitrogen and 4 per cent potash was found more profitable than similar mixtures containing less potash.

Cotton grown in a very dry year and after a crop of red clover turned under

Club Work for the Community

(*From page 12*)

hopeful and determined to win permanent possession of the trophy without having the names of any other club engraved upon it.

The banquet at which this trophy was presented was a spectacular occasion from start to finish. The Governor of the state was the principal speaker. Well known men from the colleges or the farms of Wisconsin, Illinois and Iowa were on the program. Medals bestowing honor and credit to a large list of men who made outstanding accomplishment in various lines were handed out. However the real climax came when W. C. Branaman, vocational teacher from Salem and a group of his boys came forward and received the Jenkins trophy.

"This represents the most worth while project of all this good work for it is dealing with a group and with the community instead of dealing with single individuals," said one man who had gone through long years of work in agricultural extension service. His statement seemed to express the thought in the minds of the several hundred in attendance. That is why the awarding of the trophy created such a remarkable and favorable impression.

The winning of the trophy was not the result of spontaneous effort but had been achieved by hard consistent work after a good foundation had been laid and after some rather substantial development in club work had taken place in the community.

EARLY club work in Washington county, in which Salem is the county seat, was fostered by local leaders who volunteered their services. Club work in the county, and especially in the vicinity of Salem, took on something of an organized form about five years ago under the management of S. W. Furnace who was then county agent.

Earl S. Miles, present county agent, has been a consistent booster for club work. He is a man truly worthy of his calling which is that of rural leadership. He has builded well upon the foundation laid by the splendid volunteer local leaders and by Furnace. He has an ability to inspire others to work for themselves and for the public as well as to inspire confidence in himself. These qualities have inspired leaders and kept them on the job. All this has helped in the club work. It has interested boys and girls in the club projects and has caused them to enroll and to carry on the work to a successful conclusion.

IT was W. C. Branaman, teacher of vocational agriculture in the Salem High School who really took the job in hand of putting over the winning of the trophy. Miles worked with him and gave assistance and advice to the organized group and to the boys and girls individually. Yet it was Branaman who was in the locality all the time and it was he whom the club members might consult upon a moment's notice.

When the organized group of boys and girls met for their regular meeting then a number were secured. The task of securing enrollments was completed by personal work. Those who were enlisted in the project were largely members of the Vocational Department of the Salem schools. However, any boy or girl of club age who lived within the consolidated district was eligible.

The fact that the club members who put over this project in such a splendid manner had a regular business organization helped greatly in carrying the project to a successful conclusion. The president of the club through the strenuous year was Audrey Williams. She qualified as a club member by feeding a splendid Hereford steer calf which was good enough to win second in his class at the great International Show at Chicago.

At the monthly meetings presided over by Miss Audrey various problems in connection with their projects were discussed and help and information as well as inspiration were secured. Discussions by the members had a prominent place on the programs. Branaman says this was for the purpose of developing leadership among the members. Sometimes they had outside speakers. These often were members of the staff of the state extension service who could talk subject matter that would be helpful. At other times the speaker was a Farm Bureau worker or some person who could give an interesting and helpful talk upon some general subject. These meetings served to build up the group spirit in the members and to train them in working together.

The winnings at the great show in Chicago included the breed championship and reserve grand championship by Beryle Williams, Audrey's brother. The club sent eight calves to that show and five of them placed in the money. An equally good record had been made at the Indiana state fair.

The final report of the state contest is distinguished largely by the fact that a large percentage of the members completed their project. The winnings had nothing to do with the final rating. Of the 950 points which were credited to this club 660 were earned because the work was completed on 66 project enrollments. A commendable feature in connection with this final result is the fact that only 56 boys and girls were enrolled. Some of them carried on the work in more than one line which made it possible for the 66 completed projects to be secured.

A banquet was held at Salem one week after the club had secured the trophy at the state agricultural college. Several hundred home folks met to do honor to the boys and girls who had brought such signal honor to themselves and to the community. Never before had the people gotten together with such a splendid feeling of pride in their community and in their boys and girls and with such confidence in their county agent and their Vocational teacher.

This banquet really marked the end of a 5-year club program. Also it marked the beginning of a bigger and better community life.

* * *

Fooling the Japanese Beetle

(*From page 9*)

distance of nearly a half mile and causes them to concentrate on plants in a relatively small area. It is thought that it may be practical to collect the insects in these concentration camps and there poison them by contact sprays, catch them in traps, or kill them by allowing them to feed on poison bait.

Already traps have been devised which when baited with geranoil will catch as many as 3,000 beetles an hour during the time when they are active. A poisoned mixture of bran and molasses perfumed with geraniol has been successfully used.

Kentucky Blue Grass

(*From page 27*)

an average for the three treatments, 1,403 pounds of digestible crude protein and 6,791 pounds of total digestible nutrients as compared to 562 and 6,730 pounds, respectively, produced in the grain rotation.

The plots of the old Pennsylvania fertilizer experiment located on Hagerstown soil on the College farm which have given the highest average yields for 40 years have produced on four acres only 857 pounds of digestible crude protein as compared to a maximum of 1,986 pounds produced by the blue grass pasture. If the straw is used for bedding and the wheat grain sold as a cash crop, which is the usual custom in dairy farming, then the pasture has furnished on four acres 1,298 pounds of digestible crude protein and 1,376 pounds of total digestible nutrients in excess of that available from the grain rotation.

To produce a four-year rotation yielding 61 bushels of corn, 3,166 pounds stover, 33.3 bushels of oats, 28.3 bushels of wheat, and 3,200 pounds of hay on four acres, requires 226 hours of man labor and horse labor at a cost of $59.61. To maintain an established pasture would require annually on four acres not more than eight hours of man labor and horse labor for top-dressing mineral fertilizers and repairing fences at an annual cost of $2.80. If we add $2.40 per ton, the cost of grinding the grain necessary for cattle feed, the labor cost of the four acres of grain rotation would be approximately $67.00. On the basis of the above yields, 765 pounds of digestible crude protein and 8,407 pounds of total digestible nutrients would be produced, excluding the oats and wheat straw. On an average of the three soils, where complete fertilizers were used, the blue grass pasture produced on four acres 1,986 pounds of crude digestible protein and 8,535 pounds of total digestible nutrients.

On the basis of the above figures, the labor cost necessary to produce one ton of digestible crude protein would be $178.22 for the rotation and $2.82 on the pasture. In like manner one ton of total digestible nutrients would involve a labor cost of $15.94 and $0.66, respectively. To produce four acres of ensilage corn yielding 37.2 tons involves a labor cost of $106.04. Such a yield would produce 744 pounds of digestible crude protein and 9,896 pounds of total digestible nutrients. The total digestible nutrients would be produced at a labor cost of $21.21 per ton as compared to $0.66 as shown for the pasture.

The above computations are presented to show the importance and economy of pasture feeding and not to discourage the use of grain rotations or ensilage feeding, both of which are vital factors in successful livestock production.

* * *

Prevention of Decay

(*From page 44*)

pany received but one report of decay.

A foreign representative of the M.O.D. incorporation made the most spectacular test by carrying a paper bag of the treated fruit from Redlands, California, through South America to England, and reported that the fruit was in good condition at the end of the 40,000 mile journey.

The manager of a large independent shipping firm states that

the discovery of the treatment has done more for the lemon industry than either the tariff regulation or the freight reduction.

* * *

Bringing in Wood

(*From page* 13)

with good fishing, but there are no trees. A start was made on one area in the Spring of 1923 when some 10,000 forest trees were set out under the direction of the Forestry Extension Service. This was extended in 1925. The first plantings have attained heights of from 4 to 15 and 20 feet, depending on species, and have attracted real interest from all the land owners around the lake.

Altogether, there are now 27 counties in Iowa carrying on tree planting demonstrations and a few of these are on the county-wide basis.

The county-wide plan of carrying on tree planting demonstrations has been working out so successfully that every effort is being made to put all the tree planting demonstration work on this basis as soon as possible.

The first program of this kind was a shelterbelt program in Story county during the spring of 1924. The second was in Warren county during 1925.

Under the plan a demonstration is arranged for each township. All preliminaries are completed during the winter. A planting week is set for the county, usually during April. Three of the plantings are used as training demonstrations at one or the other of which the other cooperators are expected to be present.

These training demonstrations are supervised by the Extension Service and gotten under way during the first three days of the week under guidance of the county agent and the leaders who attended the training demonstrations. This plan conserves specialist time and makes it possible to reach a larger number of people more thoroughly and efficiently than where scattered plantings are established.

The ultimate goal is one shelterbelt and one woodlot demonstration in every township in Iowa.

The same hillside 3½ years later after having been planted to white pine in cooperation with the Experiment Station and Extension Service of the Iowa State College

When the County Agent Was New

(*From page* 15)

they were provided. There was nothing to serve as a guide to the work that he should do, nor that to which his organization might set its hands. All this must be formulated out of his own judgment and carried into effect by his own initiative.

No wonder that his troubled thoughts were often projected into the unknown future. Summoning all his resources and calling upon every ounce of his driving energy, would this work be a success or a failure? Was there anything in it at that time to indicate that it would be permanent? How would it be received and supported by the people?

IN the early days of county agent work, the people craned their necks to see what manner of man the county agent really was. This was the chap who had come to tell them how to farm! And if they watched him for a mile while he was coming into sight, they watched him for two miles while he was leaving for they did not know whether they even dared to trust him.

At first this idea was rather resented among the farmers. They voted against the county agent system in most places wherever there was the opportunity. And in a good many places if it had not been for the far-sighted vision of a few farmers and business men, this new movement very likely would not have gotten very far. A few public spirited men and a few generous hearted organizations helped to keep it alive.

The first funds were raised either through memberships or through subscriptions. It was not long after the first organizations were formed—to be exact, it was in 1912—that the federal government provided a special fund for the support of this work and $1,200 could be secured per year by those counties that had secured the services of a county agent and had made the proper application for it. It was not generally known at that time, nor is it common knowledge today, that there was a fund of a million dollars set aside through the generosity of a public spirited corporation through which $1,000 could be secured to aid the work in any county that had hired an agent. This fund was known as the Bert Ball fund and there were no strings attached to it.

It was about this time that the government recognized the county agent work and made it a part of the state extension organizations. The state county agent leader was the next development; and from that time to the present there has been a steady growth and perfection in the work of organization.

The county agents who started work prior to this time were adventuresome chaps. Otherwise they would never have undertaken a work concerning the future of which so little was actually known at that time. These pioneers were men who never knew when they were licked; and though often disappointed the thought of quitting never entered their minds until the work had reached the stage where the people began to recognize in it a force of incalculable educational value in shaping the course of agriculture and moulding the character of rural life. How evident this all is today! Perhaps these pioneers builded better than they knew.

The origin of the county agent work in the northern states was largely a matter of spontaneous growth. Without doubt the inception of this work can be traced to a similar type of work—perhaps somewhat more on the nature of club work—that had given such excellent results under the able direction of Dr. Knapp of the Department of Agriculture. Extension work, as it was first conducted in the northern states, was rapidly reaching the limits of its most effective results. The unit of the state was too large. There was a demand for more intensive work under closer supervision. That this demand was general is indicated by the fact that almost within a year several local organizations were started in widely separated territory, in various parts of the country, in fact, long before any of the associations had proved their usefulness, much less their permanence.

New York state claims the honor of the first northern organization. During the next year organizations sprang up in several states. Within six weeks, in the fall of 1912; the first three organizations in the state of Iowa were started—M. L. Mosher in Clinton county, G .R. Bliss in Scott, and A. A. Burger in Black Hawk. These men had all had several years of experience in the extension department at Ames under the inspiring influence of that great extension leader and rural teacher P. G. Holden known throughout the nation even at that time for his great work in connection with the improvement of corn.

Professor Holden's philosophy of extension work was intensely practical and to the point. He taught in terms of the lives of the people, the simple practical things of farming and farm life. Club work was very new at that time. It was very natural, therefore, that some of the first work in Iowa should be on the experimental and demonstrational order, that is, with horticulture, farm crops, livestock, and soils. No mistake was made in this choice of work; it was fundamental teaching and is so today. It was followed largely in many of the early counties and its evident success laid the foundation for the rapid development of this new system of education.

Perhaps this early work looks easy now, but it was beset by many handicaps. The primeval forest of those pioneering days through which roads had to be laid out and established was public sentiment. The Indians who stalked about with sharpened tomahawks were enemies to the new order and they had to be won over. Unfortunately, there are still with us a few of those who could not be converted, but their tribe is rapidly decreasing.

IT is now generally recognized that the county agent system is the proper channel through which the Department of Agriculture and the various states may reach the people. It has been properly designated as the greatest forward-looking step in agricultural education since the time when Lincoln, in his far-seeing vision, under the Morrill act of 1862, established the land grant or agricultural colleges of the country. It is doubtful whether extension work, under our present conditions, could be conducted at all without some kind of county organization.

The county agent should feel that he is a very important cog in a great organization. He is more than that, for he is the local leader and in a sense is the most impor-

tant part of the organization because he must deal directly with the people. And the same may be said of the home demonstration agent or the county club leader, more recent developments of this plan of extension work.

Great impetus was given to this work during the world war. There was a rapid development from a few organized counties to an organization in which practically every county of the United States was represented. Then experimental work was largely dropped for the county agent was forced by necessity of war-time circumstances to be a part of a great food producing and food conserving system.

He performed valuable service to the country. Unfortunately, and for this the county agent was not to blame, part of this work reacted unfavorably upon the American farmer in the deflation which followed two years after the close of the war.

Considering the magnitude of the work there have been few mistakes. The few have served as stepping stones to better progress. The work now is well organized and the county agent has become a part of a well established order. He has the advantage of knowing what has been done before and he is in a position to do much more effective work in the future. True, he may still be "cussed and discussed" but he has, at least, the satisfaction of knowing that the great majority of the best thinking people, the most effective leaders, are with him. He is no longer looked upon as the self appointed adviser and dictator of the farmer but as the extension field man, the helper, and the representative of the people in that department. And his duties and his usefulness to the people are yearly becoming more important.

Concentrated Fertilizers

(*From page* 23)

joining plot without fertilizer the yield was a little over 50 bushels to the acre.

FOR potatoes and also for most truck crops there seems good reason for adopting a more concentrated fertilizer than is at present being generally used. The modern potato planter provides for the mixing of the fertilizer with the soil so that it does not come in direct contact with the seed.

The farmer who cares to do his own mixing will find distinct relief in the reduction in labor consequent upon handling the concentrated materials. The following high grade standard materials have all been used with success:

Acid phosphate containing 16 per cent phosphoric acid

Triple acid phosphate containing about 45 per cent phosphoric acid

Ammonium phosphate containing about 13 per cent to 15 per cent ammonia and 60 per cent phosphoric acid

Ammonium sulfate containing 25 per cent ammonia

Nitrate of soda containing 18 per cent to 19 per cent ammonia

Ammonium sulfate nitrate containing about 32 per cent ammonia

Urea containing about 55 per cent ammonia

Nitrate of potash containing about 16 per cent ammonia and 43 per cent to 44 per cent potash

Muriate and sulfate of potash containing 48 per cent to 50 per cent potash

Unbending Backs

(*From page* 19)

no farmer could be induced to use a wire binder. Deering was so successful in manufacturing the Appleby binder that in 30 years he owned one of the two largest harvester plants in the world. John F. Appleby's first twine knotter is now on display, at the Wisconsin State Historical Museum at Madison,—a fitting background to exhibit the efforts of a Wisconsin man.

For 50 years the harvester kings waged fierce battles of competition. By 1902 the harvester business was in the midst of such a destructive war that four of the biggest harvester kings were compelled to join forces or be ruined. They chose the former course, which resulted in the formation of the International Harvester Company, of Chicago.

The output of this company is tremendous. In one of its five twine mills, which is the largest of its kind in the world, there is enough twine twisted in a single day to make a girdle around the world. In the paint shop the man with the brush has been replaced by a huge tank of paint. Into the tank is "soused" the whole frame of a binder, and the unskilled workman considers himself slow if he dips less than 400 a day. This cooperation of mind and millions, has unbent the backs of farmers all the way to ancient Rome.

* * *

Arkansas

(*From page* 28)

stress on the necessity of long-time experiments, and no results are published from his department which are not arrived at over a period of several years.

The experiments on cotton, carried out at the Arkansas station ranks among the best work of the kind in the U. S., according to Nelson. Director Gray points with pride to the projects on cotton varieties, and the development of new strains.

Notable among the strains brought out are Trice 110 and 111. These strains show a marked increase in earliness. At the same time, Trice 111 has shown a large increase in production over the best commercial strains of the same variety. Two other strains, Foster 140 and Triumph 154 showed an increase of 300 pounds of seed cotton in the first picking over the parent strains, and gained 108 pounds in total yield of lint per acre.

A large number of fertilizer experiments are being conducted with the cooperation of county agents and leading farmers of the state. These projects have brought the station's work in close touch with the farmers of the state, and have made possible fertilizer schools for farmers held annually at the University. The results of these tests show that nitrogen is the most needed element for crop production on Arkansas soils.

* * *

A King of Spuds

(*From page* 8)

and Dick would dig more potatoes in a day than any of his men. Questioned about this, his answer was direct to the point. "I didn't expect a hired man to keep up with me. If he dug half what I did, that was enough."

Dick was the first potato grower in his county to subscribe toward the $100,000 student hospital at the state agricultural college. "If the boys need it I'll help build it," was

(*Turn to page* 58)

Little Japs

By G. P. Walker

Department of Soils, Purdue University

"I AM sending you a plant that came in here a few years ago and is spreading all over the country. Cattle eat it as readily as good grass. Is it of any value or a new pest?"

Such was the inquiry of Dave Fitzgibbons of Jackson county, Indiana, which came into the Indiana Experiment Station along with a specimen of lespedeza or Japan clover. This is a typical instance of the spread of this little pasture legume.

After a rather general distribution over the southern states during the Civil War it has been an important hay and forage crop in that section and for a long time was regarded as a strictly southern plant. It gradually spread over Tennessee and up into Kentucky, largely by its own efforts or through natural causes, and for a number of years has been heralded as a valuable pasture crop for the rolling lands of those states. It is now rapidly spreading over the southern third of Indiana and is already maintaining itself successfully as far north as Owen and Brown counties, while the commercial production of seed is fast developing as an important enterprise in several counties of western Kentucky.

This northward movement of lespedeza shows its ability to adapt itself to conditions. Ordinary seed is made up of a mixture of strains,

Mr. T. J. Shively, Owen county, Indiana, farmer, believes Korean lespedeza is the cover crop he wants for his rolling apple orchard. Here we see him in his garden seed plot where he is growing his own stock of seed

some large growing and late maturing, others smaller and earlier maturing. In the South the larger plants predominate by reason of their crowding of the smaller ones under the favorable conditions for maximum growth. As the crop comes north into the shorter growing seasons the large plants fail to mature seed and the smaller ones increase. Being an annual the crop must mature seed in order to maintain itself and the farther north it has been grown the better the chance of maturing a good crop of seed the first year in new territory.

By taking possession of the thin rolling hill land it is greatly increasing the value of these areas for pasture purposes. It is also beginning to be used as a cover crop for orchards on slopes too steep for cultivation, its tough fibrous root system combined with its habit of making a dense carpet-like growth and ability to reseed itself being particularly adapted for this purpose.

THE comments of the men who have tried it shows that it is making some enthusiastic friends in its movement up through the corn belt. W. G. Volkmann of Gibson county scattered a bushel of seed on the higher parts of his 50-acre hill pasture and in three years had the following to say of it: "These 'Little Japs' are sure a life saver for me. They have spread all over these old poor hills and when the grass dries up in July or August the cows begin to eat the lespedeza and actually give more milk."

Professor C. L. Burkholder of the Horticultural Division of the Extension Department at Purdue University says, "Japan clover is the only legume crop that will stick and thicken up on the thinner rolling orchard lands where a cover crop is badly needed."

County Agent Otten of Vanderburg county reports that it is giving fine results as a cover crop on such land in that section.

L. W. Gudgel of Gibson county has been using lespedeza as a rotation crop for a number of years. He indorses it in these words, "I get fine sheep pasture for two seasons and then grow a 50-bushel crop of corn on the lespedeza sod. "It's the best crop we can grow on these sour clay soils where we cannot get clover." In one season Mr. Gudgel got enough growth to cut a ton and a half of good hay per acre.

Roy Smiley of Daviess county gives a somewhat different idea of the crop when he says, "We find that on our thinner pasture soils where lespedeza grows for a few years blue grass seems to take on

(*Turn to page* 58)

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new life and comes in again."

Lee Bond, a Knox county hog raiser, says the lespedeza is making some mighty good hog pasture on his sandy loam soil during the dry weather of mid-summer when it is hard to keep grass growing and clover dries up.

Most of the men who have started lespedeza have made light seedings, usually from 5 to 8 pounds per acre, and let the crop thicken up by reseeding itself instead of using the 20 pounds necessary for a full stand the first year. Quite often it makes a much more vigorous growth after reseeding itself than it does the first year. No artificial inoculation seems to be necessary as the plants examined by the writer have all been well supplied with nodules. The seed is usually broadcasted on small grain or the thin parts of pastures while the ground is frozen or seeded with oats in the spring. It germinates rather slowly and makes little growth before June. It stands drouths well and remains palatable for animals after the grasses dry up, continuing its growth till frost. The seed pods are produced all along the stem in the leaf and branch axils so that the crop can reseed itself even when closely pastured.

The new Korean strain, which matures seed from a week to ten days earlier than the ordinary strains of lepedeza will no doubt extend the lespedeza belt still farther north. It is maturing seed in Iowa and Michigan and seems to be reseeding itself all over Indiana. It is a heavy seed producer and grows somewhat taller than the Japan.

This strain is too new in this country for any large commercial source of seed but there is enough that anyone can get a start and grow his own seed. T. J. Shively of Owen county sowed a pound and a half of it on a small hillside garden spot last spring and flailed out 35 pounds of good seed last fall. He is growing it for use as a cover crop in his orchard.

* * *

A King of Spuds

(*From page 55*)

his comment. This hospital is being built by Pennsylvania potato growers. Over $1,000 was raised for this hospital by Wayne county potato growers.

Dick's gospel of potato growing is spreading over the county and his neighbors are going into the business on a larger scale. This brings up the question of marketing these bumper crops.

Dick says these fellows are as good potato growers as he is, only they are afraid to put the stuff under them. He tells them every year that potatoes won't grow if they don't feed them. "If you try fertilizing heavy, you'll never go back to the old way."

One of Dick's neighbors who is now crowding him for honors recently saw two dealers who bought his potatoes last year. Each of them wanted all the potatoes he had, at the top market price. So Dick and his neighbors grow more and more potatoes and market them easily because they grow them better and better.

The county agent once introduced Dick to a group of men as potato king of Wayne county. "No, I am not a potato king," he said. "I only grow a few acres. If I could work now like I did once, I'd be potato king, you bet."

He would too, because he likes potatoes and that, after all, is one of the big secrets of his outstanding success.

Selling Service with Fertilizer

By Weller Noble

Chairman, California Soil Improvement Committee

¶ Last month we ran the first part of Mr. Noble's talk which dealt with the salesman's obligation to his customer

WHAT is the obligation of the salesman to his company?

FIRST: To always conduct himself so as to be a credit to his company.

Make no statements or claims that you would not make if the manager or president of your company were standing at your elbow. The public knows the industry principally through its contact with salesmen, and it makes no difference how high the ideals of the officers of a company are, the standing of the company in any community is in the hands, for the most part, of its representative in that community. It is through the combined efforts of all salesmen that the standards of their company and of the industry as a whole will be raised.

Ours is as clean, wholesome and self-respecting an industry as any other line of business, for by its very nature of helping others to profit, it places the industry in a class of which we should all be proud to be members, and we should each do our share in gaining and holding the respect that the industry deserves.

SECOND: It is morally wrong, as well as it shows poor business judgment, to discredit your competitor. It is seldom that you profit, and never permanently, at his expense.

I feel that in times past we have all devoted too much energy in the endeavor to discredit our competitor's goods rather than give the prospective purchaser the knowledge which he required and desired of the goods which we were offering him. This makes the customer distrustful, not only of your competitor (if your argument has appeared reasonable and sound) but of you and all of those engaged in the industry, for there will most surely lurk in a small corner of his mind a doubt of all those who subsequently call upon him relative to fertilizers.

I have heard many men speak of the reprehensible practices that formerly took place and how the different firms abused the buyer through sales of valuable commodities.

I have been able to trace but a very few of such criticisms to anything tangible. They are handed down from mouth to mouth something like the legends of uncivilized races, who have no written language, and they are kept alive, in my opinion, to a great extent through destructive cirticism between competitors, that is to say, salesmen and others representing

the different firms.

I have been in the business a good many years and know of but very few specific instances of acts of companies that would call for the criticism of the buyer, and cases of fraud are getting fewer every year, for the fertilizer companies themselves are earnestly endeavoring to see to it that every assistance is given the Fertilizer Control Departments in weeding out those who would defraud the farmer through sales of valueless commodities.

However, when a number of different men sell goods on the basis of being one of the "Lily Whites" and painting all others as black as the "Ace of Spades", the purchaser does not know whom to believe and slowly, perhaps, but surely, becomes converted to the idea that every fertilizer representative is out to defraud him, and every bag of fertilizer contains for the most part rocks and sand.

THIRD: It is the obligation of a salesman to be honest—one of the good things about honesty, according to Coleman Cox, is "that you don't have to remember what you have said". Be honest with your customer, if you don't know, tell him so—don't misrepresent your goods and don't evade terms and conditions outlined by your company—you will lose your customer more often than you will hold him by so doing.

FOURTH: Cooperation is the final obligation that you owe to everyone, to your company, to your competitor, to your industry. There has not been the cooperation in the fertilizer industry that one would expect and what is the result—lack of progress. In 1914 there were sold in the State of California 37,000 tons of fertilizer and in 1924, 66,273 tons, although in 1922 we did reach a peak of 81,270 tons.

The industry probably dates back in California to some time in the 90's and we cannot look with pride on our accomplishment. There has been a tendency in past years to see our industry from the narrow aspect, rather than from the broader view. I am going to refer again to that part of my subject which concerned relations with competitors, and even at the risk of losing some force in my remarks through repetition, I am going further into the subject, for it is one of the paramount issues confronting us.

Instead of building up new territories and securing new customers, a good many companies have, in their scramble for an order, worked against each other in such a manner as to bring the industry into disrepute through cutting prices to less than cost, thereby ofttimes making it appear to the farmer that exhorbitant profits were being added to fertilizers and in some instances what is far worse, cheapening their fertilizers in order to meet destructive competition.

Naturally, this "dog eat dog" attitude has ofttimes extended to salesmen and agents with a result that in some localities a fertilizer salesman is considered a pest; rather than a welcome visitor who not only sells a sound article but renders a valued service in connection with the sale.

THEREFORE, today we are confronted with either a decided change, or the industry, so far as California is concerned, will be a thing of the past. I will cite you an instance of what I mean, and this is an actual occurrence. Imagine a fertilizer salesman calling upon a man who has never pur-

chased fertilizer and the agent dwells upon the fact that other companies' fertilizers are full of sand, and he takes up most of his time telling how poor the other companies' fertilizers are and how wonderful his particular product happens to be and giving a long discourse on filler—mind you—to an individual who does not know fertilizers or the benefits that might be derived from same. This might work all right temporarily, if another agent did not appear upon the scene to extol the virtues of his particular fertilizer, to the detriment of the previous caller. You might smile at such a bald-faced way of selling fertilizer, but it is being done every day, and what is the net result? What would be your reaction to such practices? What would happen in the medical profession if each doctor destroyed the confidence in his fellow physician in the same manner?

How much better for a salesman to give data on his particular fertilizer—its method of preparation, the reasons for the different kinds of plant food and their function in producing a crop, giving results obtained by their use, showing how and when to apply, giving some pointers on irrigation, cultivation, pruning, etc., if this is possible, and particularly speaking well of other salesmen and competitive companies—or at least keeping silent if nothing kindly can be spoken.

THE farmer perhaps does not realize it, but he has been getting about $1.10 worth of fertilizer and service for each 90¢ he has spent, with a result that a good many of the old fertilizer companies have retired from the field. You gentlemen know of all this, perhaps, better than I, therefore, I sum up my ideas on the obligation of a salesman to his company briefly.

BE Honest.

BE Fair.

KEEP Silent if what you have to say will not help the industry as a whole.

COOPERATE With your competitors.

BE a Credit to the industry and help place it on the high plane to which it belongs.

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Averages

(*From page 4*)

while they nearly froze the last four days with the thermometer around forty-four, is purposely misleading you and trading on the universal misconception of the word average, (3 x 105 = 315; 4 x 44 = 176; 315 + 176 = 491; 491 ÷ 7 = 70).

Similarly, the salesmanager who, in his annual report states that his men travelled an average of eleven miles a day is merely mouthing meaningless figures which present a faithless, unrealistic picture of the salesmen's efforts. If he goes on and explains that the country salesmen in sparsely settled country did not consider a daily jaunt of two hundred and fifty miles unusual, while some of the city men with customers on every corner often found themselves at the end of the day less than a mile from where they started in the morning, then the salesmanager can compliment himself on faithfully portraying the work of his men.

A friend of mine bought a business one time upon the affidavit of the owners that during the preceding year the average monthly net profit was $400. When the business was turned over to him an examination of the books showed a profit of $6,000 for December for which the Christmas rush was responsible, a loss during the first three months of the year, a breaking even during the summer, and slight profits for September, October and November—a net gain for the year of $4,800, or *averaging* a monthly net profit of $400, just as the owners had made affidavit.

That my friend found himself possessed of a business that did not suit him for an all-year-'round activity was due to too hasty acceptance on his part of "the law of average."

Statistics are valuable—make no mistake about that. And the law of averages is still as fully in force as the law of gravitation or the law of self preservation. I have no quarrel with either averages or statistics, and am only intent upon clarifying, in my poor fashion, man's understanding of these things. There are many laws, you know, without mentioning any certain amendments by number, which, though in effect, are misunderstood and even disobeyed by men!

To understand a law comes before harnessing it to our use. Simple and obvious, you say? Most things are. It is only the simple things we misinterpret; the complicated ones require so much study that we fathom them easily!

IT is only a trifling mental step from the making and understanding of averages for statistical use, to the understandings of Nature's evident adoption of similar methods.

Nature's intent, to the observing, seems to be a reduction of every pound of grist that comes to her mill to a drab mediocrity that will go through the same mesh. She seems to love the mediocre, for unless man steps in and intervenes and by careful and artificial selection advances the breeds to higher-than-average strains, all bird and animal life tends to grey itself into an indistinguishable average.

Put some Chester Whites, some Poland Chinas and other highly developed breeds of hogs into a thousand acre run and let them run wild for ten years—what will you have? A race of colorless, proportionless, valueless, grey, *average* razor-backs.

All wild animals look alike—all deer, all wolves, all rabbits, all

foxes. True, we have red foxes and grey, but my point is this: that, taking a thousand red foxes we find a startling sameness, an average likeness which precludes genius in the species. The occasional discovery of a personage among wild life only proves the exception that demonstrates the rule. All breeds of animals, in time, form a "type".

And so it is with men and their organized efforts—they tend to degenerate into a dust-colored flock until you cannot with ease pick one from the other.

Though each started out with radical tendencies, all secret societies now have a certain drab, average sameness. Ten thousand men at a ball game wear the same hats, think alike, act alike, are alike. Political parties, beginning in the heat of controversy and sired by personages with strong, individualistic tendencies, now have sunk to the narrow limits of the average men in them—and are at the last indistinguishable.

The religion started by Henry the Eighth as a means to an end, to permit him to divorce an unwanted wife; the creed begun when Martin Luther impaled his defy on the church door; these and all other religions have come down to us through the centuries, gradually losing their intense personalistic flavor, and becoming more and more tinted with the drab of Thomas, Richard and Henry. Having lost their essential spirit, they now taste alike and smell alike, as all the gravies in a restaurant have the same general smack of the common pot.

In time everything becomes an average—the law works on all men, all things. Though we start with a prince and a peasant we come inevitably at the last to have a man half way between, no longer a prince, yet not a peasant, having neither the brilliance and scintillation of the one nor the picturesqueness of the other. An average Babbitt, even as you and I.

TO the man who would become something above the average and thus respond to that secret, inner urge which is actually only the reaching of the ego to its natural boiling point, the study of what makes an average should be valuable, for by studying what to avoid we learn what to become.

Breeds in animals are attained by spotting certain outcroppings of genius, startling individualisms, rare peculiarities of value, and then, through artificial selection repeating them until what was unique becomes common.

This requires generations. To soar above the average takes time. But a brain can provably be bred higher in a single generation. Though the body reaches its zenith before thirty, the brain continues until death to change hourly, to fatten upon whatever is placed before it, to constantly creep higher and higher if permitted. Thus to "breed up" a brain means simply to feed it constantly upon higher-than-average fare.

The man who travels with the Immortals; who, through their books, sits at table with the geniuses of ages; who plays his intellect against those of the sages of other times; who sharpens and whets his philosophy against the philosophies of men whom the world now recognizes as personages, is going to be a higher-than-average man—*in this generation.*

His feeble brain mends its pace to the quicker tread of these faster fellows and strengthens its fiber to a new elasticity until it soars without effort to the rarer strata above and looks down with compassion upon the "average man".

AS FATHER SERMONIZED

John and George, small sons of a Baptist minister, after listening to one of their father's sermons, decided that they must baptize their family of cats.

The kittens made no objection. One by one they were put in a big tub of water.

But when it came to the mother cat, she rebelled—and fought—and scratched—until at last John remarked:

"Just sprinkle her, George, and let her go to h—l!"—*Baptist Young Peoples Union.*

FIFTY-FIFTY

A West Virginia darky, a blacksmith, recently announced a change in his business as follows:

"Notice—De copardnership hertofore resisting between Me and Mose Skinner is hereby resolved. Dem what owe de firm will settle with me, and what de firm owes will settle wid Mose."—*Walkover Press.*

Son: What's a genius, Pop?

Pop: A genius is a man who can rewrite a traveling salesman's joke and get it accepted by The Ladies Home Journal.—*Cornell Widow.*

"I see in the paper that a widower with nine children has married a widow with seven children."

"That was no marriage. That was a merger."

COOLIDGE ECONOMY

This story is related by a person connected with the White House.

One Sunday after the President had returned from church, where he had gone alone, Mrs. Coolidge inquired:

"Was the sermon good?"

"Yes," he answered.

"What was it about?"

"Sin."

"What did the minister say?"

"He was against it."—*Pittsburgh Chronicle Telegraph.*

LEAVE IT TO THE IRISH

Mistress—"Now, Bridget, there's no use in further argument as to how the dish should be prepared. But our ideas on the subject are so different that it is evident one or the other of us is crazy."

Bridget—"True for you, mum; an shure it isn't yerself would be kaping a crazy cook."—*Canadian Countryman.*

FARM MANAGEMENT

Rastus—"We done sold all our black mules cause we figgured they et more 'an the white ones."

Sambo—"How you all figger dat?"

Rastus—"We figgered and we figgered and all we could find out was dat we had more black ones than white ones."

"Well, I'll be dammed," said the brook when the fat woman broke through the bridge.

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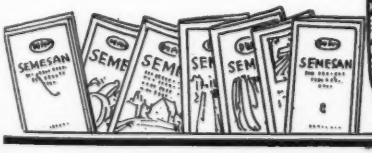

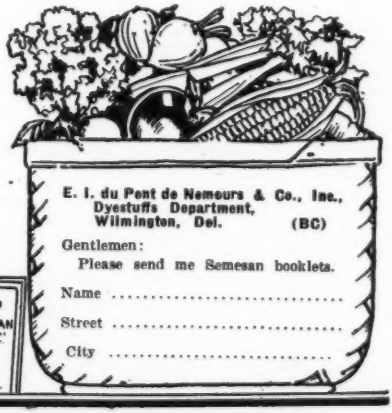

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